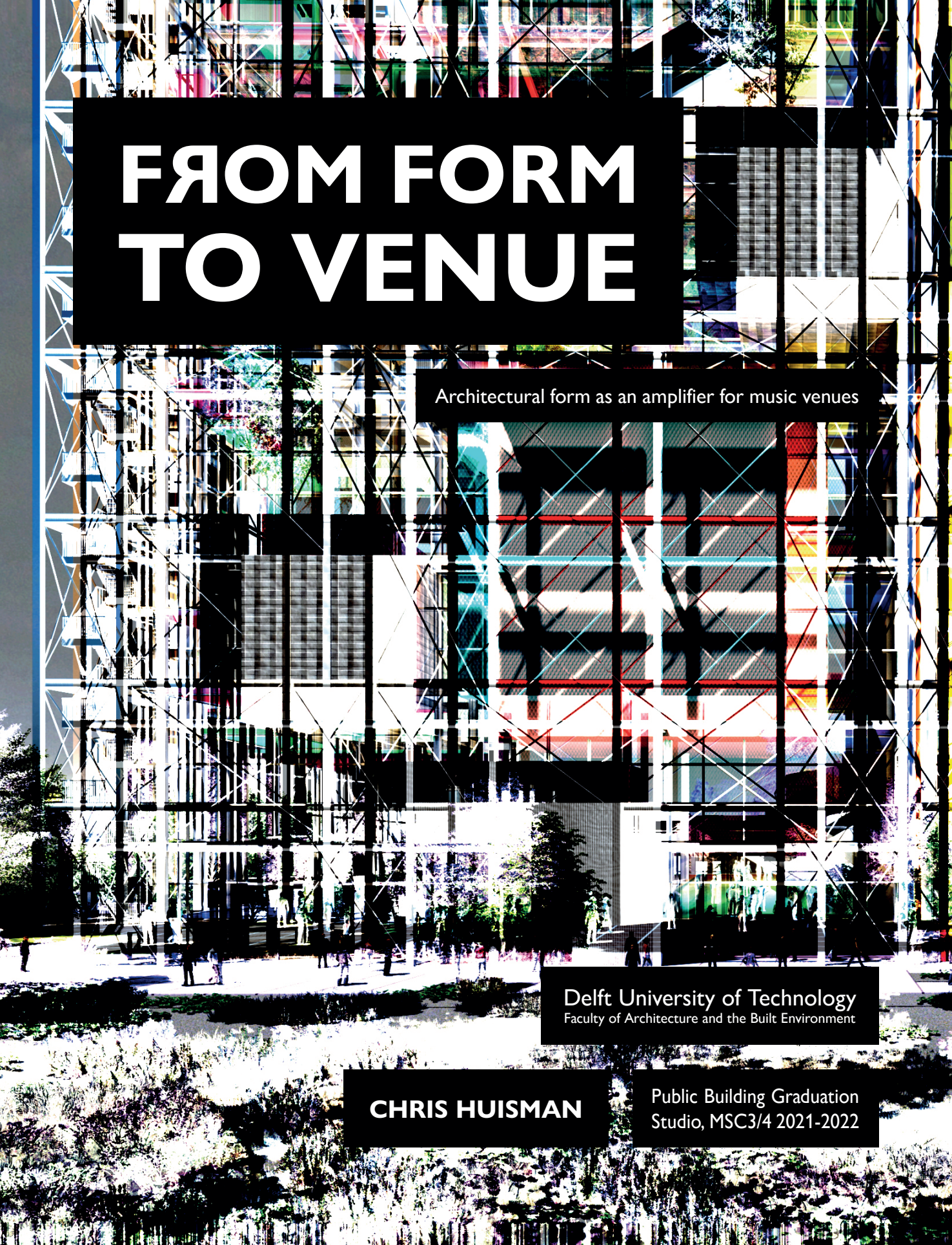


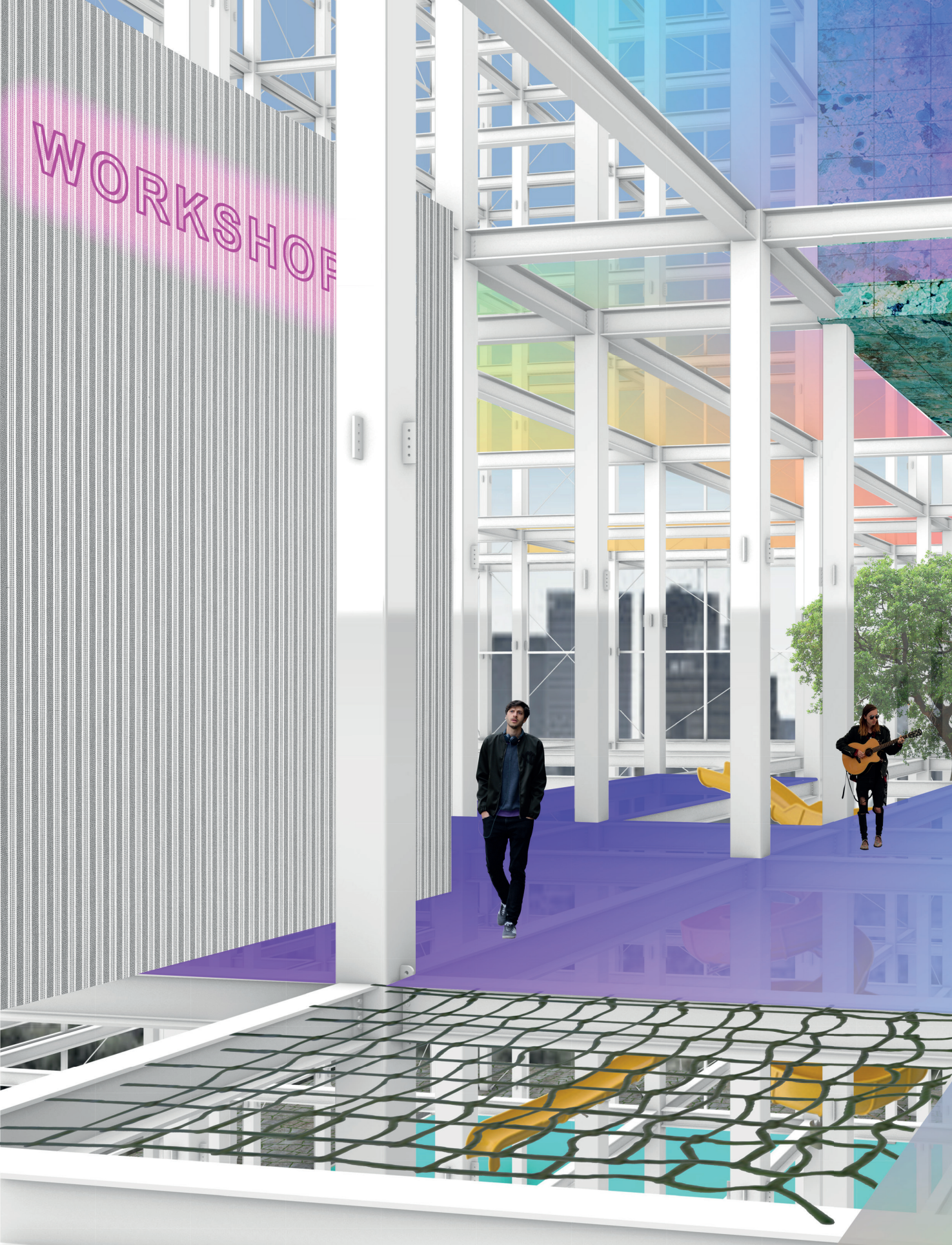
FROM FORM TO VENUE

Architectural form as an amplifier for music venues

Delft University of Technology
Faculty of Architecture and the Built Environment

CHRIS HUISMAN

Public Building Graduation Studio, MSC3/4 2021-2022


WORKSHOP



00.01.
Collage impression of the interior festival terrain.

FROM FORM TO VENUE

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Architectural form as an amplifier for music venues

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MSc3/4 Public Building Graduation Studio

FROM FORM TO VENUE

Architectural form as an amplifier for music venues

AR3AP100: Public Building Graduation Studio
MSc3/4 2021-2022

MUSIC MARVEL | Music & Popular Culture Re-Wired
The Hague | Binckhorst

P5 GRADUATION REPORT
Chris Huisman | 4701771

Responsible Instructor
Nathalie de Vries

Course Coordinator
Paul Kuitenbrouwer

Tutors
Stefan Witteman, Piero Medici, Sang Lee

Delft University of Technology
Faculty of Architecture and the Built Environment

17-06-2022

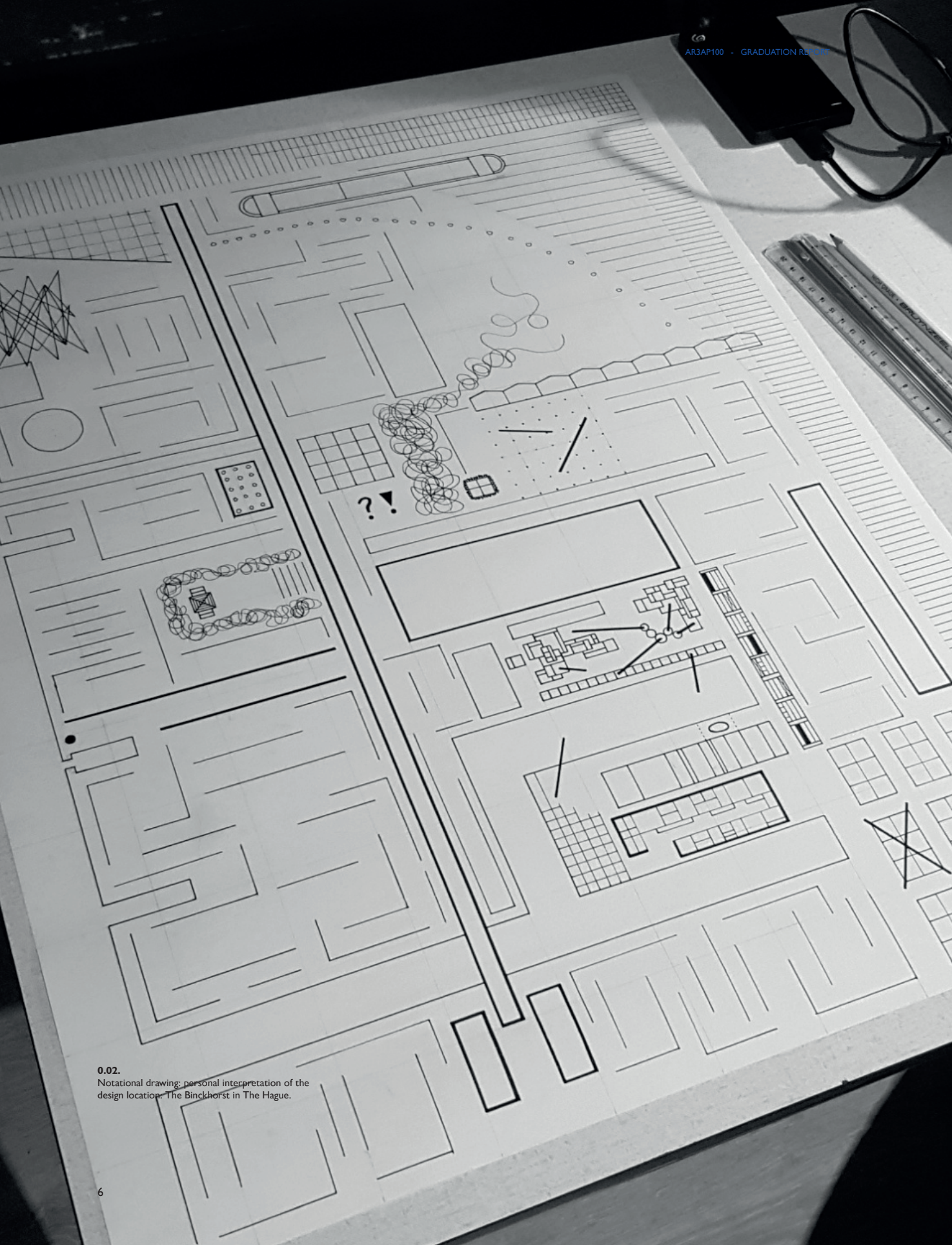
MUSIC MARVEL

music & popular culture re-wired

the hague | binckhorst

public building

AR3AP100 MSc3/4 2021-22



0.02.
Notational drawing: personal interpretation of the design location: The Binckhorst in The Hague.

PREFACE

This book is the result of my graduation project within the Public Building Graduation Studio, done during the third and fourth semester of the Architecture track, as part of the Architecture, Urbanism and Building Sciences master programme at Delft University of Technology. With this project, research was done on a fundamental aspect of architecture: form. Next to that, the concept of a festival was explored. These two topics served as direct input for the design of a music venue, fitting with the theme of the studio: "Music Marvel".

Driven by both personal interests on the topics of form and festival, and by doing research on how several aspects regarding the design of a music venue could be "amplified", this study resulted in a design for a building which can be best described as a vertical festival of forms. The venue is characterised by unique and recognisable forms, supported by a modular system. Next to this, visitors of the venue will experience a lively and complex space that all around them. Besides, matching the concept of "Multiplicity", the building is not limited to hosting concerts only. The spaces of the venue can also be used for theatre plays, for conferences, for workshops, for markets, etc., making the project more feasable and convincing.

When looking back at the past academic year, the whole process of this graduation project was inspiring, intense and educational. There was plenty of room for experimenting and following your own ambitions. Because of this, I can say that I am truely happy with the final result and I feel this year has given me a lot in order to position myself in the field of architecture.

Before you dive into the contents of my graduation project, I want to use this space to say thank you to a couple of people who were involved during this project. First of all I want to thank my main tutors, Stefan Witteman and Piero Medici, for the tutoring sessions and their feedback during the whole design process. Next to that, I want to say thank you to Sang Lee and Nicola Marzot for their inspiring lectures during the first semester. Lastly, I want to thank the other tutors of the Public Building Graduation Studio for their feedback during the midterm presentations, and I want to thank all the other students of the studio, for interesting talks in the studio space.

Chris Huisman

Paterswolde, June 10, 2022

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1. GRADUATION PLAN

FROM FORM TO VENUE

Personal information	
Name	Chris Huisman
Student number	4701771

Studio		
Name / Theme	AR3AP100 Public Building Graduation Studio	
Main mentor	Stefan Witteman	Project Design (Architecture)
Second mentor	Piero Medici	Building Technology
Argumentation of choice of the studio	I have always been interested in designing complex, public structures, dealing with iconic values, the urban context and the project brief in an abstract or conceptual way. The studio topic of "Music Marvel" (designing a concert hall) connects seamlessly to this interest.	

Graduation project	
Title of the graduation project	From Form to Venue *architectural form as an amplifier for music venues.*
Goal	
Location:	The Hague, Binckhorst
The posed problem,	Defining how architectural form can contribute to the experience of a music venue.
research questions and	How can form amplify a building for music?
design assignment in which these result.	The design of a music venue in the Binckhorst.

The design location is situated in the Binckhorst, an industrial area and business park located south east of the city centre of The Hague in The Netherlands. Contrary to it's rather strong position, the Binckhorst is an isolated site within the city because it is surrounded with strong borders such as railroad tracks and a canal. Because of city growth, the municipality of The Hague is planning to transform the Binckhorst into a dense and lively working and living area that is well connected to the rest of the city.

In order to meet the desire of densification and in order to make the Binckhorst more lively, a public building for a concert hall, or a "Music Marvel", will be added to the area. With the design of this music venue, specific focus will be put on one of the most fundamental aspects in architecture: form. The reason for putting emphasis on form comes from a personal fascination as well as the fact that distinct forms are

more or less absent in the current situation of the Binckhorst. Therefore it is an opportunity to use form to strengthen both the design for a music venue and the future urban landscape.

Related to music, the need for strengthening something can be translated to the concept of an amplifier: a device for making weak signals audible by increasing the power of these signals. Therefore, with this project, the word *amplifier* will be used as an analogy for *strengthening*, *making visible* and *adding (iconic) value*. Research will be conducted on how architectural form can be used as an amplifier for the experience and perception of a building for music and the music venue will be an amplifier for the Binckhorst.

This means that in the first place, the goal of this project is to design a music venue in the Binckhorst. Next to that, the focus will be on researching if, and how, architectural forms can be used consciously to strengthen a visitor's experience of a building. With this, the intention is to get a better understanding of the influence of architectural forms on the perception of a building, as well as to find clear answers on how these forms can contribute to creating a more immersive experience for visitors of a music venue. In other words: architectural form will be used as an *amplifier* for experiencing a concert and the music venue itself will act as an *amplifier* for the urban development of the Binckhorst.

Process

Method description

In order to reach this goal, several actions will take place to create enough input for the design assignment as well as to contribute to the broader discourse. To find an answer to the main research question (*"how can form amplify a building for music?"*), literature research will be conducted on form theory and several case studies will be analysed on their appearance in relation to the experience of the venue. This will form the theoretical framework of the project from which a "form catalogue" can be constructed. This catalogue of forms will provide general knowledge on what kind of forms can evoke what kind of experiences, which will be widely applicable within the field of architecture. Simultaneously with this theoretical research, site specific research will be done to collect the qualities and forms present in the Binckhorst and in The Hague, to be used in the design project.

For the structure of the graduation project, three specific themes and questions will play a central role within the project:

1. Form theory: what do physical forms do in the sense of perception and experience? (literature review)
2. Music venue typology: what aspects of a building for music can and need to be amplified and how can form contribute to that? (case studies analysis)
3. Site: what qualities and forms are present on the site and can be amplified by a building for music? (site analysis)

To set a basis for the project, literature research will be conducted on what architectural forms can do for the experience of a visitor of a building. Next to that, case studies will be analysed to acquire more knowledge on typical forms in relation to other building aspects such as program, acoustics, construction and experience. Finally, design research will be done to explore possibilities and get an understanding of the context as well as to implement the theoretical findings directly into the design, in order to find more profound design solutions that are specific for the location and the assignment.

Literature and general practical preference

The literature listed below will be used to gain knowledge on form theory. These books will be consulted and used for the first part of the theoretical framework of the project: to get an understanding of what physical forms can do in the sense of the perception and experience of a building.

Alexander, C. (1964). *Notes on the Synthesis of Form*. Harvard University Press.

Alexander, C., Ishikawa, S., & Silverstein, M. (1977). *A Pattern Language: Towns, Buildings, Construction.* Oxford University Press.

Bachelard, G. (1964). *The Poetics of Space*. Presses Universitaires de France.

Bacon, E. N. (1967). *The Design of Cities*. Thames & Hudson.

Ching, F. D. K. (1979). *Architecture: Form, Space, & Order.* John Wiley & Sons Inc.

Corbusier, L. (1985). *Towards a New Architecture.* Dover Publications.

Forsyth, M. (1985). *Buildings for Music: The Architect, the Musician, and the Listener from the Seventeenth Century to the Present Day.* The MIT Press.

Lynch, K. (1960). *The Image of the City*. The MIT Press.

Ungers, O. M., Koolhaas, R., Riemann, P., Kollhoff, H., & Ovaska, A. (1977). *The City in the City - Berlin: A Green Archipelago*. Lars Müller Publishers.

Zumthor, P. (2006). *Atmospheres.* Birkhauser.

Next to this, several case studies (concert halls) will be analysed specifically on form and its relation to the program and experience of these buildings. The music venues that will be used for analysis are:

- Berliner Philharmonie, Hans Scharoun, Berlin, Germany (1963)
- Muziekgebouw aan 't IJ, 3XN, Amsterdam, The Netherlands (2005)
- Casa da Música, OMA, Porto, Portugal (2005)
- Oslo Opera House, Snøhetta, Oslo, Norway (2007)
- Philharmonie de Paris, Jean Nouvel, Paris, France (2015)
- Tivoli Vredenburg, Herman Hertzberger, Utrecht, The Netherlands (2014)

As can be expected, the theory given and obtained during the BSc and the MSc 1-3 semesters is treated as known. For this course specifically, this includes site specific information and group research conducted during the first semester of the Public Building Graduation Studio, on sixteen buildings for music as case studies.

Down below, a global planning of the MSc 4 is described:
Week 3.1 – 3.7: Design Development
- Continuation of research on form, to serve as direct input for the design and to construct the "form catalogue".
- Further exploration of the design, from scales 1:500/200 to 1:100/50/20/5.

Week 3.8: P3 Presentation (Progress Review)
Week 3.9 – 4.3: Further Design Development
- More detailed and concrete design, technical aspects, models.
- Finishing both research and concept (vision, diagrams), preparation for P4.

Week 4.4 – 4.6: P4 Presentation
Week 4.7 – 4.8: Finalization
Week 4.9 – 5.1: P5 Final Presentation

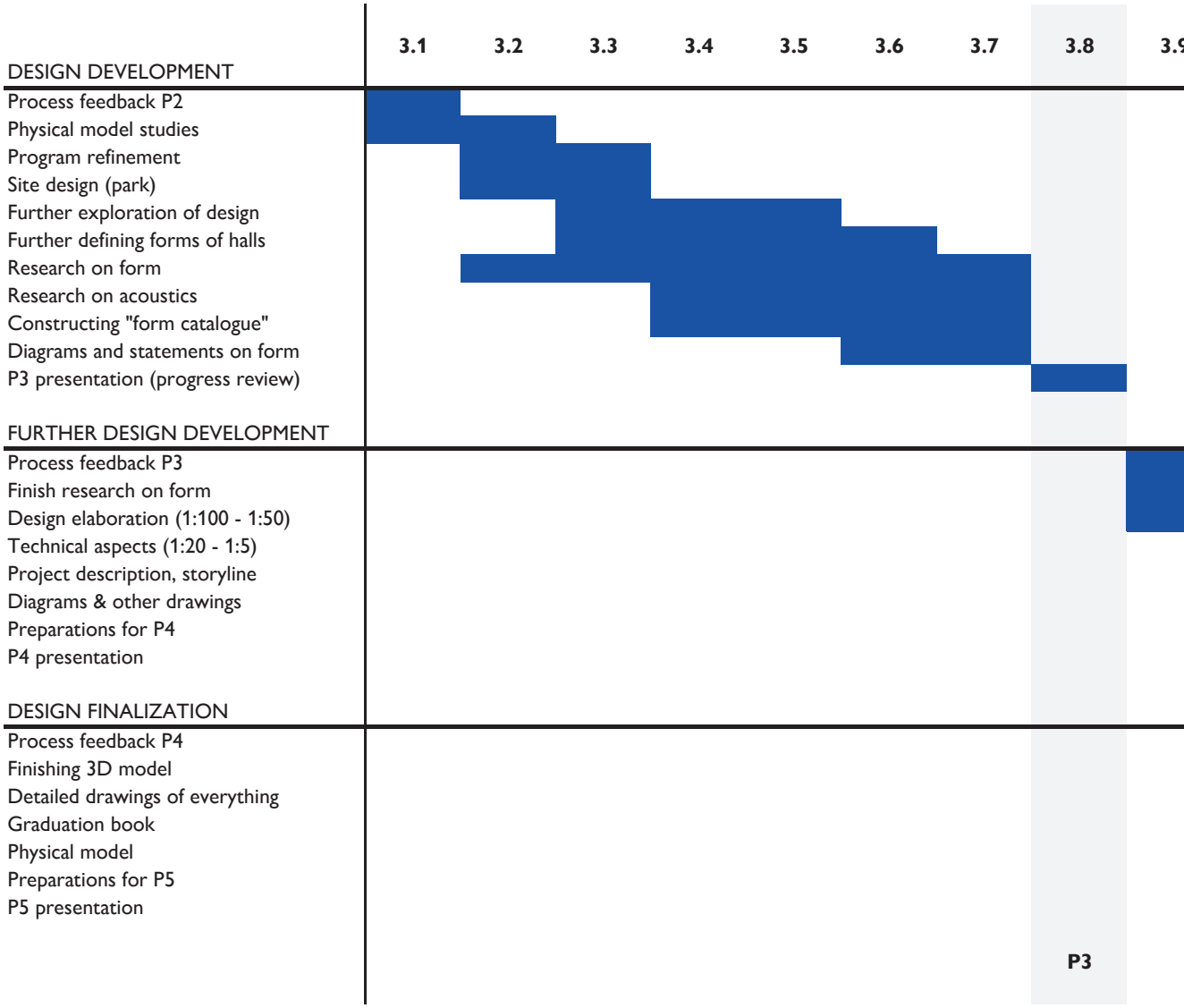
Reflection

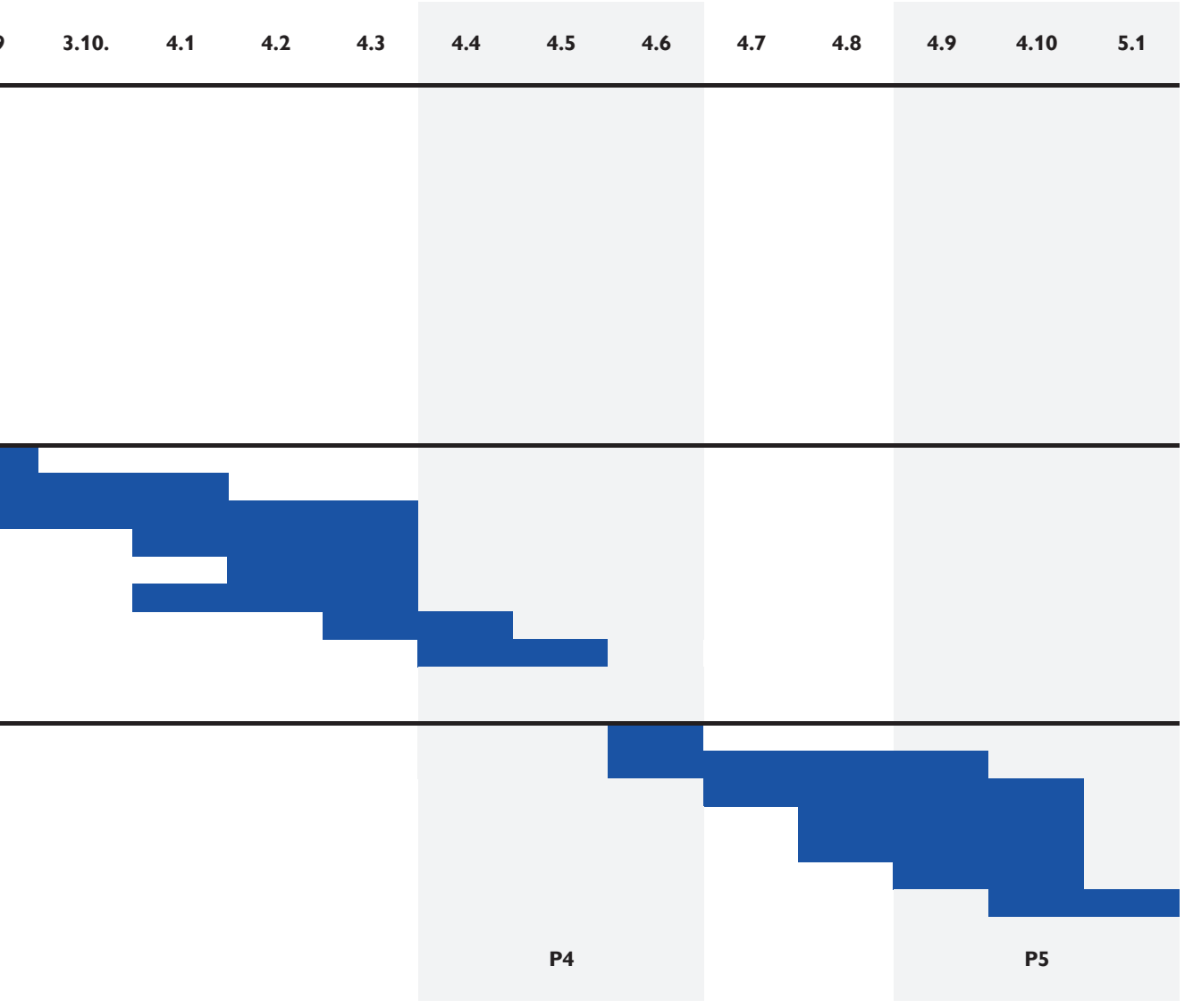
1. Relation between project, studio and master programme.
   The graduation project and the topic of the studio are directly related to each other. The aim of the Public Building studio is to "explore the vital role of music as a public event and to investigate how architecture can be engaged in music as an important part of civic life and urban milieu." (AR3AP100 Public Building Graduation Studio 2021-22, 2021, p. 5). The focus of the studio is on the physical context as well as on the socio-cultural context of creating a public space. This graduation project will explore these aspects and it will result in the design of a music venue. Next to that, the graduation project puts the emphasis on form as a tool to design a more immersive experience. Architectural form is a fundamental aspect within the field of architecture and therefore the research relates to the overall master programme.

2. Relevance in the larger framework.
   In the larger social, professional and scientific framework, this graduation project is relevant in the sense that it will provide knowledge on the relationship between the physical appearance (or: *form*) of structures and the experience one can have when interacting with such structures. This will be presented as a catalogue of fundamental forms and can be used as a design tool to emphasize certain experiences through the use of these forms. Besides, the research method is set up in such a way that it can be applied to and repeated for other disciplines or projects within the field of architecture.

AR3AP100 Public Building Graduation Studio 2021-22. (2021). *MUSIC MARVEL.* [Studio Handbook]. https://brightspace.tudelft.nl/d2l/le/content/398796/viewContent/2481011/View

PLANNING


3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8
3.9
DESIGN DEVELOPMENT
Process feedback P2
Physical model studies
Program refinement
Site design (park)
Further exploration of design
Further defining forms of halls
Research on form
Research on acoustics
Constructing "form catalogue"
Diagrams and statements on form
P3 presentation (progress review)
FURTHER DESIGN DEVELOPMENT
Process feedback P3
Finish research on form
Design elaboration (1:100 - 1:50)
Technical aspects (1:20 - 1:5)
Project description, storyline
Diagrams & other drawings
Preparations for P4
P4 presentation
DESIGN FINALIZATION
Process feedback P4
Finishing 3D model
Detailed drawings of everything
Graduation book
Physical model
Preparations for P5
P5 presentation
P3



1.01.
Table with the weekly project planning for MSc 4.

2. THEORY

PROJECT ABSTRACT

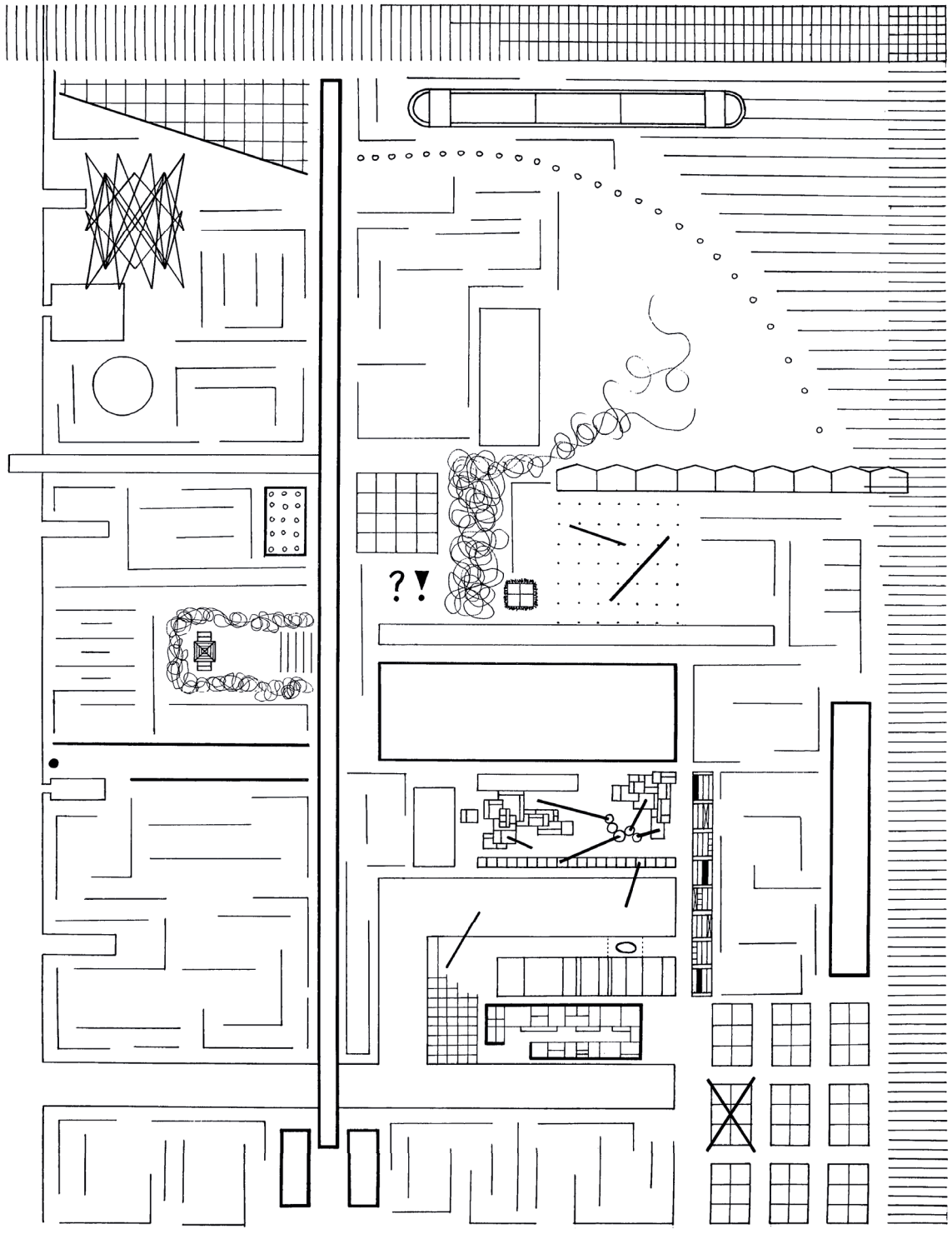
BINCKHORST FESTIVAL - FROM FORM TO VENUE

The Binckhorst currently is a chaotic business park with strong borders: train tracks, large roads, fences everywhere. The aim is transform this: to greatly densify the site and improve the connections towards other parts of The Hague. For this, the Binckhorst will be seen as a 'festival': a place where a lot of activities happen and where visitors can freely wander around and explore the place.

Next to the theme of a festival, architectural form is a key element in both the development of the Binckhorst and the design of the music venue. Because form is one of the most fundamental aspects in design and because of a personal fascination for form, form will be used as a tool to strengthen or *amplify* the experience of a music venue. Research will be done on how forms can amplify and what forms are needed. This will result in a collection of distinct and unique forms that will be composed into a building.

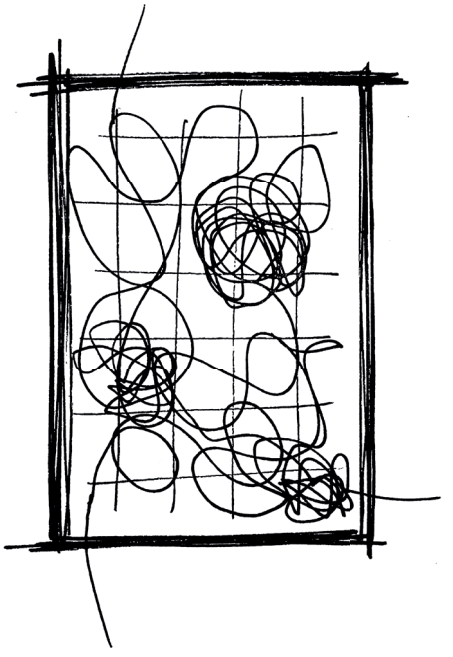
Not only the site itself is a festival, also the music venue that will be placed inside the Binckhorst is seen as one. Because of the specific site conditions, all forms that are necessary to support the program of the venue, will be placed on top of each other. All the inbetween space will be the festival terrain. This means the building is open and all kinds of different functions are hosted both inside and outside. Multiplicity is key, especially programmatic-wise: a circulation space can also act as a foyer for a concert hall or as a terrace or a meeting space. Public space therefore does not end where the building starts, the venue will be a public terrain for visitors to experience music in the most immersive way possible, amplified through form.

2.01. (right page)
First notational drawing: free interpretation of present forms in the Binckhorst. Drawn on paper, 50 x 65 cm.



EMPATHY DIAGRAM

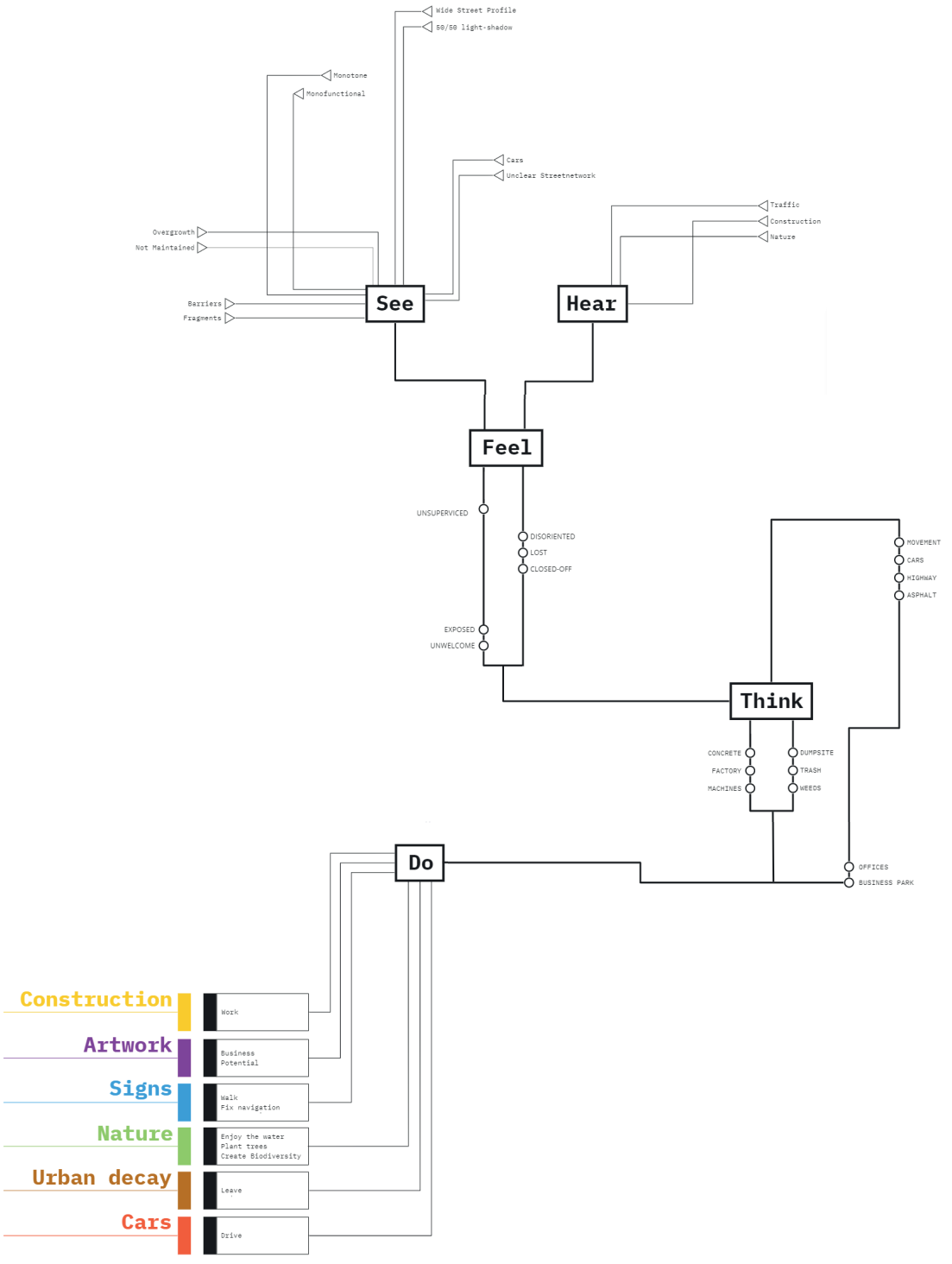
	Chris	Edgars	Phat	Zsa-Zsa	We
like...	...the **industrial** **nature** and appearance of the site in combination with some **unusual aspects** such as the chickens and the graffiti	...the feeling of **underdeveloped** **unsupervised** space	...the **break** from urban density	...the **contrast** between **construction** and nature	...the **contrast** within area (**industry** & **nature**) and the contrast between **city** and **area**
wish...	...there would be **more green** and less stone-like surfaces.	...there was **more allure** and **destinations** in this area	...there were **more spots** where I could stop and **relax**	...I could sample the variating **smells**	...there was a more **dynamic range** of offered **sensations**, coupled with **pitstops** for appreciation
wonder...	...how the **characteristics** of the current **urban scenery** can be translated into a music building to resemble the context.	...how will Binckhorst **change** with the **active presence** of competitive **commercial development**	...maintaining **"the island"** principle can attract visitors	...if the current **"residents"** would like to **change** the area	...what kind of **an island** it is when **connected** [if it still is one?]
what if?	...all the (funny) **signs** were collected and made in some sort of **artwork**, or used in the **music venue**?	...the **decay** of Binckhorst is used and seen as **quality** instead of an obstacle	...if I designed for **the area first** and not the building	...this whole area will be **transformed** into a **festival terrain**	...what if Binckhorst was **proclaimed** a **festival area**?



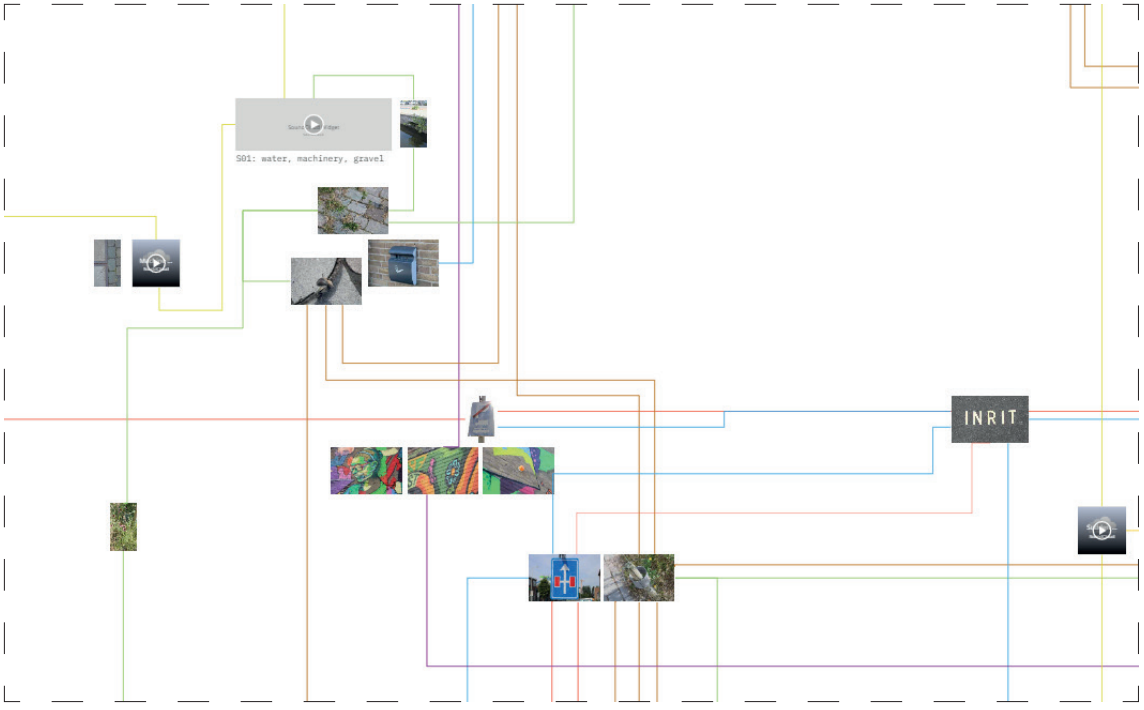
2.02. (top)
Empathy diagram of what each of us experienced in the Binckhorst, last column is the group findings.

2.03. (right)
Site diagram sketch: the Binckhorst has strong borders all around but is chaotic inside.

2.04. (right page)
Groupwork: see / hear - feel - think - do - diagram as part of the larger sampling diagram (see next pages).


Wide Street Profile
50/50 light-shadow
Monotone
Monofunctional
Cars
Unclear Streetnetwork
Overgrowth
Not Maintained
Barriers
Fragments
See
Traffic
Construction
Nature
Hear
Feel
UNSUPERVICED
DISORIENTED
LOST
CLOSED-OFF
EXPOSED
UNWELCOME
MOVEMENT
CARS
HIGHWAY
ASPHALT
Think
CONCRETE
FACTORY
MACHINES
DUMPSITE
TRASH
WEEDS
Do
OFFICES
BUSINESS PARK
Construction
Work
Artwork
Business
Potential
Signs
Walk
Fix navigation
Nature
Enjoy the water
Plant trees
Create Biodiversity
Urban decay
Leave
Cars
Drive

SAMPLING DIAGRAM





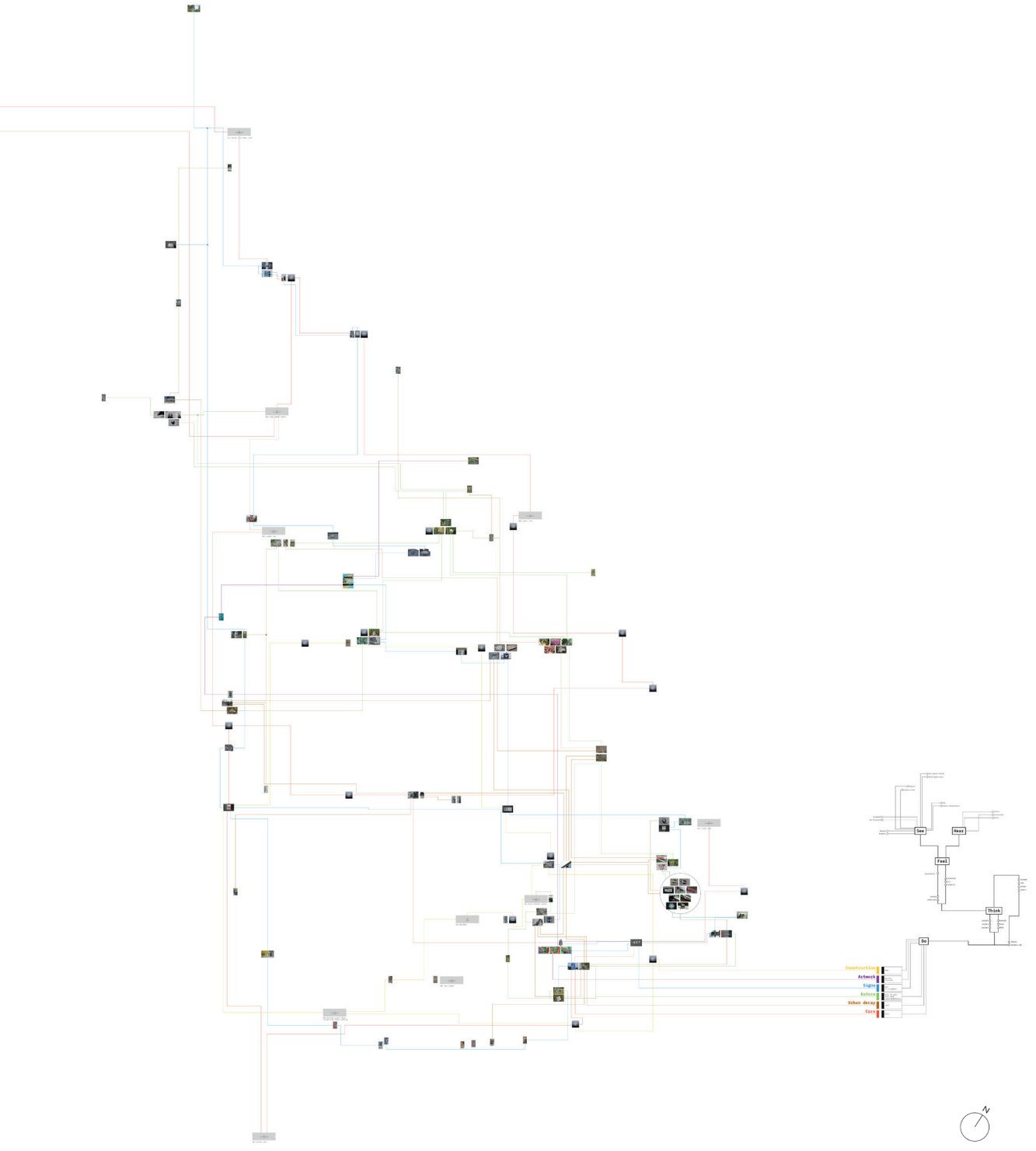




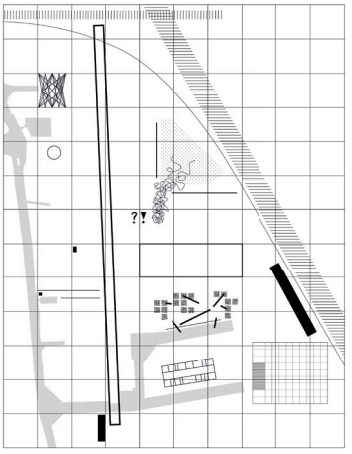
2.05. (top)
Zoom-in of a part of the sampling diagram, showing samples (images & sound fragments) located relatively to each other, connected through coloured lines of six different categories.

2.06. (bottom, left)
Collection of objects found in the Binckhorst. Objects are usually waste or car industry related items.

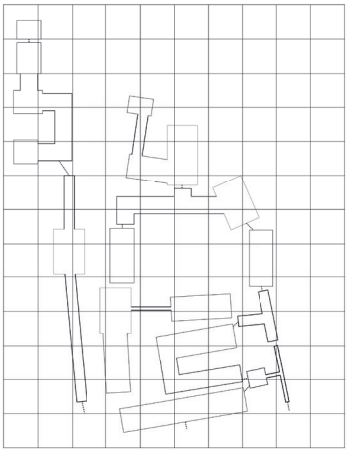
2.07. (right page)
Overview of the complete sampling diagram by Zsa-Zsa Brouwers, Phat Ho, Chris Huisman & Edgars Jane.


See
Hear
Feel
Think
Do
Construction
Artwork
Sight
Nature
Urban decay
Cars
N

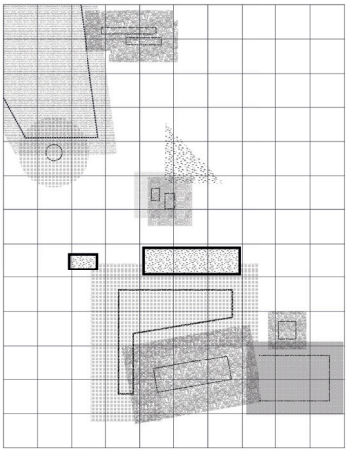
NOTATION



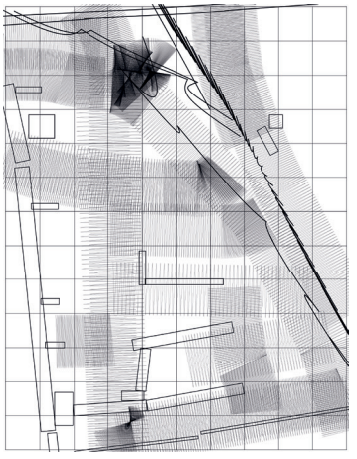
FORM



FLEXIBILITY



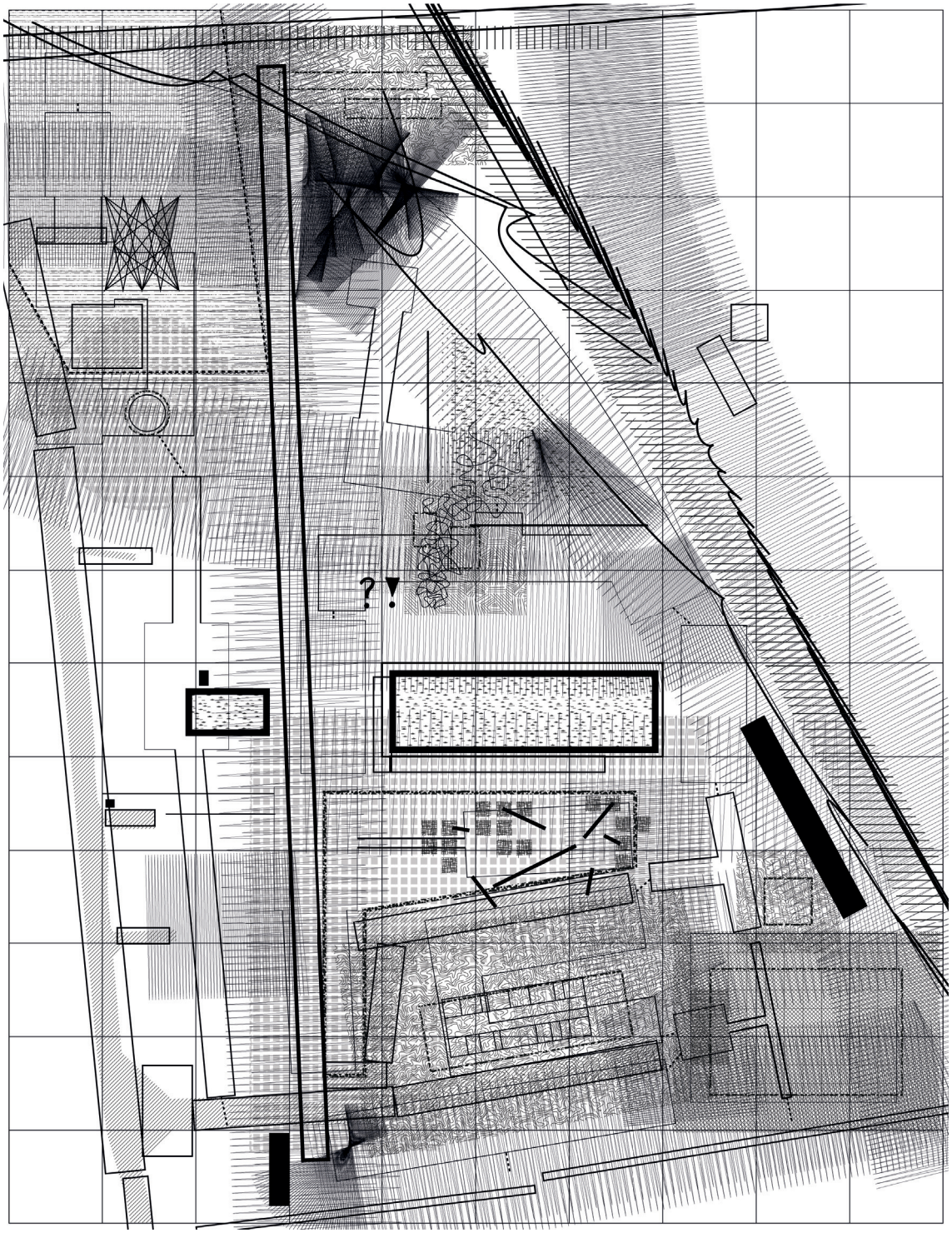
FLOW



FRONTIERS

2.08. (left)
The four topics of which the notational drawing consists. From left to right: Form (by Chris Huisman), Flexibility (by Zsa-Zsa Brouwers), Flow (by Phat Ho) & Frontiers (by Edgars Jane).

2.09. (right page)
Final notational composition of the Binckhorst by Zsa-Zsa Brouwers, Phat Ho, Chris Huisman & Edgars Jane. Four layers (Form, Flexibility, Flow & Frontiers, see next pages) are superimposed to create a notation where density of these topics is shown.



GROUP ABSTRACT: AMPLIFIER

Zsa-Zsa Brouwers, Z.O.I.L.Brouwers@ student.tudelft.nl
Chris Huisman, L.C.Huisman@student.tudelft.nl
Phat Ho, P.T.Ho@student.tudelft.nl
Edgars Jane, E.Jane@student.tudelft.nl

Amplifier: Introduction

There is a signal; not even a signal, just a weak impact, which is input into a device. That device strengthens the signal and then passes it on. You speak into a microphone and a ‘small signal’ is being registered, which then is routed into an amplifier where the ‘enlarged signal’ is passed onto an executing device.

Energy is needed for amplification. A source of energy is input into the amplifier with which control over the weak signal is achieved. Amplification is a function. Roughly speaking, and it is not entirely right, one can take a human as an example: having a weak signal in the brain, thoughts transform it into a larger entity. With living beings, to establish an exact analogy is impossible, but roughly speaking, it is so.

Amplification is possible only with the presence of either an external source of energy, or accumulated internal one. From a weak signal you get a strong signal, equal in form to the initial. Sinusoidal, Trapezoidal etc. But afterwards, the enlarged signal can be transformed in any preferred way. The process of amplification is inherently costly, as it always ‘spends’ part of the energy of the source; loss is always present in the process of amplification.

Group 3 presents an amplified compilation of ‘research signals’, enlarged to be discovered as an alternative methodology of space production and a strengthening of a new framework for enveloping music performance space.

Group 3 Online Submission, Week 1.7. *12 Oct 2021.*

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Amplifier: Abstract

1900 saw the first 'technological' amplified concert hall, enabling scaling of music.[1]
How can amplification as a method inform and scale our approach to architecture?

The Binckhorst is an underdeveloped area of contaminated potential. The irregular decay of its own industrial heritage has generated an overall monotony of character. We approach this project as if it was a network of obscured signals that are in an acute need of amplification. It's not that there is a lack of them; it is more that their dimensions have limited correspondence with the human scale. When amplified, these signals begin to resonate with a broader spectrum of scales of experience. By enlarging and enriching the legible field of available specificities, an opportunity for a re-association of the character of Binckhorst emerges. Analogous to the field of modern music, the challenge lies in 'regulating' the found noise in order to produce emotional engagement. How to transform monotony into excitement in a meaningful way?

The Music Marvel is an operation of large-scale mass coordination. The truth of any mass event is that a great number of people are influenced by the decisions of a few. The knowledge about crafting a welcome space as an 'open envelope' therefore takes a central role. That is the responsibility. Visitors are as much of a guests of the event as of its surroundings: a *double engagement* with a place. That dictates the Music Marvel to recognize the necessities of a mass-venue from a qualitative viewpoint, beyond the programmatic complexities of the event.

The status of pop-culture as a dominant shaping force of mass behaviour is becoming more evident. In line with that, perhaps, the way to approach a Music Marvel is to take on the role of a *curious amplifier* by detecting the invisible. To imagine space from within and not from alongside: like a composer.[2] Mediating between 'collected noise' and 'processed compositions' we aim to distinguish and collect a set of operational tactics that are used for shaping mass-events on a variety of scales. Such systematic observation will result in a deeper understanding of the inherent limitations and possibilities of determined programming of an envelope for gathering. This will lead to a firm grasp on the spectrum of the 'music envelope': from an open air festival to an impromptu flash mob.

Interested in the hybridity of music envelopes, we pose a question to ourselves: "How can the Music Marvel, as an amplifier, blend the qualities of musical archetypes in order to enlarge interaction between unexpected crowds?" The area's proximity to the 'center' of the Hague supports our speculations on intensifying these relationships. In short, the objective is to substitute the blandness of monotony with a composition of exciting specificity.

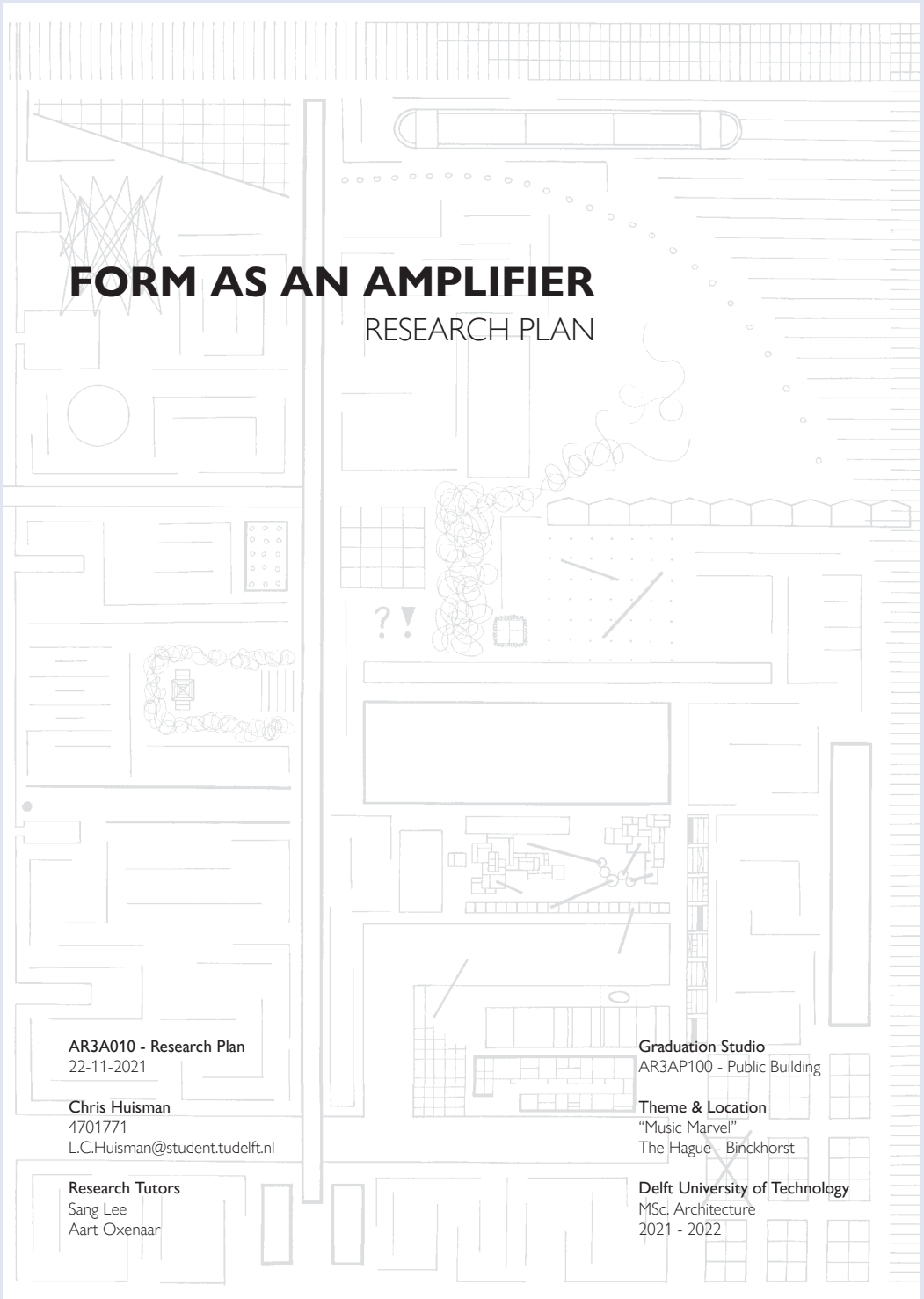
This project will contribute to the understanding of the elasticity of a built music venue by experimenting with 'dialectic clashing' of both building and musical genres. In other words, an architectural mashup—used productively. Our project sets out to challenge the prevailing methods of space-production and will rigorously present the alternatives of substituting *architectural creation* for *compositional invention*. It is an exploration into the power dynamic between cultural expression and commercial adaptation.

[1] "The 20th century started with the 1900 dedication of the first 'technological' concert hall, the Symphony Hall of Boston." Ignacio G. Pedrosa in 'Buildings for Music Since 1950'. *Arquitectura Viva*. 30.04.2017.
[2] The composer does not have in mind the representation of a specific content. Otherwise he has the wrong standpoint: *alongside* music instead of *within*. "His composition becomes the translation of a program into tones, which then are unintelligible without the program [...] no amount of 'intention' can replace invention!" Eduard Hanslick, *On the Musically Beautiful*.

RESEARCH PLAN PAPER

FORM AS AN AMPLIFIER

The following pages contains the research plan paper written as part of the research on architectural form and amplification, for the AR3A010 (RP) course.



FORM AS AN AMPLIFIER

RESEARCH PLAN

AR3A010 - Research Plan
22-11-2021

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Graduation Studio
AR3AP100 - Public Building

Theme & Location
"Music Marvel"
The Hague - Binckhorst

Delft University of Technology
MSc. Architecture
2021 - 2022

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Cover page background image: personal map of forms found in the Binckhorst. [by author].

FORM AS AN AMPLIFIER

PUBLIC BUILDING STUDIO

The topic of the 2021-2022 Public Building Graduation Studio is 'MUSIC MARVEL, Music & Popular Culture Re-Wired'. It explores the designing of a building for music in the Binckhorst area in The Hague. As is explained in the studio handbook by the AR3AP100 Public Building Graduation Studio 2021-22 (2021, p. 5), "the aim of the studio is to explore the vital role of music as a public event and it investigates how architecture can be engaged in music as an important part of civic life and urban milieu." A relevant topic is the experience a visitor has when visiting a concert. This would not only be about the musical experience itself, but also about how the architecture of the music venue is percieved and how it contributes to this whole experience of going to a concert.

THE PROJECT

The goal is to design a large and iconic hybrid music venue which can host multiple musical genres. The idea derives from the concept of a festival or a 'city-within-a-city', where several events can take place next to each other in an enclosed, designed space and where the whole is seen as one great experience. The music venue will be located in a future public park in a dense urban context. Because of the aim to mix multiple functions and musical genres, it is important that the venue can blend in with this site, to even further enhance the mixing of functions and its relation with the context.

AMPLIFYING

The idea of using the concept of an amplifier in the research is derived from the group abstract (see Appendix I). An amplifier is an electronical device used for making weak signals audible by increasing the power of these signals, as shown in the scheme below. With the group abstract, we propose to strengthen weak aspects from the design location using an 'amplifier', fitting within the theme of the graduation studio. If this metaphor of an amplifier is interpreted in its broader sense, one could say that something small is enlarged in such a way that it becomes observable, in other words: amplifying is about scaling up.

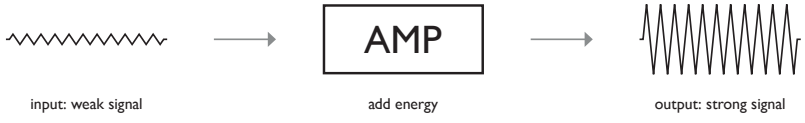

Fig. 1: Schematic operation of an amplifier. [by author].

This concept can be projected onto the field of architecture: applying an intervention (i.e. adding energy) to make certain aspects of a design or a physical location more prominently visible (note that in this example *audible* is substituted for *visible*, this would of course also be applicable to other senses).

AR3AP100 Public Building Graduation Studio 2021-22. (2021). *MUSIC MARVEL*. [Studio Handbook]. https://brightspace.tudelft.nl/d2l/le/content/398796/viewContent/2481011/View

TOPIC: FORM

As a 'device' that strengthens the design for a music venue, and as a substitution for the metaphor of an amplifier, the concept of architectural form is chosen. Form is one of the most fundamental, if not *the most* fundamental element within the field of architecture. The essence of form in architecture, using two other highly related fundamental aspects, is described as follows by Bacon: "Architectual form is the point of contact between mass and space." (1967, p. 16). By consciously using such fundamental elements in the design process, in this case form, strong design solutions can be implemented in early stages of the project, resulting in a more convincing final design. This importance of form is explained in the following quote, again by Bacon (1967, p. 18):

> *"Architectural forms, textures, materials, modulation of light and shade, color, all combine to inject a quality or spirit that articulates space. The quality of the architecture will be determined by the skill of the designer in using and relating these elements, both in the interior spaces and in the spaces around buildings."*

The project will focus on relating the architectural element of form to the experience of a building for music, using the concept of amplifying. It questions: what if physical form or the appearance of a building is used as an amplifier to strengthen the vistor's experience of going to a music venue? In the scheme below the aim of this project is explained, using the format of an amplifier. Through amplification using form, eventually the goal is to create an iconic structure that offers an immersive experience.



Fig. 2: Using the metaphor of an amplifier for the design process of a building for music. [by author].

Next to the theoretical relevance and fundamentality for using architectural form as an 'amplifier', the choice for concentrating on form comes from a personal approach. In my design process, I often use the abstract concept of form as the leading design principle. I believe that a spatial composition, using archetypes and designing with pronounced shapes within these compositions can contribute to strengthening typologies.

Bacon, E. N. (1967). *The Design of Cities.* Thames & Hudson.

RESEARCH PLAN

PROBLEM STATEMENT

The three main aspects discussed before combined are the basis for the project and the research. Firstly, in accordance with the theme of the graduation studio, the research will be about buildings for music. Next, taken from the overarching theme of the group abstract (see Appendix I, about an amplifier as a concept to strengthen a weak signal), the focus will be on amplification or scaling up. Finally, using a fundamental element in architecture and coming from a personal approach of using form as the leading design principle, the scope of the research will be narrowed down further by focussing on physical form. These three aspects then lead to the following research question:

How can form amplify a building for music?

With this leading question, other questions arise, such as: what can physical forms do for the perception and experience of a structure? What key elements does a building for music *need*? Or: what aspects of a building for music can be amplified? And: what forms can contribute to amplifying a building for music, and how? To answer these questions, the project research contains three parts:

1. *Form theory: what do physical forms do in the sense of perception and experience?*
2. *Music venue typology: what aspects of a building for music can and need to be amplified?*
3. *Combining: how can specific forms amplify these aspects of a building for music?*

Next to this, directly related to the specific site conditions for the design project of the graduation studio, an inventarisation of both present forms and (weak) qualities of the Binckhorst in The Hague will be made (see Appendix III: Binckhorst Forms) and research will be done on how to amplify these qualities. This research will mainly take place within the program of the Theory Research (TR) sub-course and the Delineation Research (DR) sub-course, both within the Public Building graduation studio. The notational system created within TR emphasizes the present forms and the final manifesto within DR will stress the need for amplification within the site. The output of this can be directly used in the design project of the music venue in the Binckhorst, to establish a stronger relation between the future music venue and the direct context. In the diagram below, the complete structure of the research is explained, a further explanation of this structure will be given on the next page.

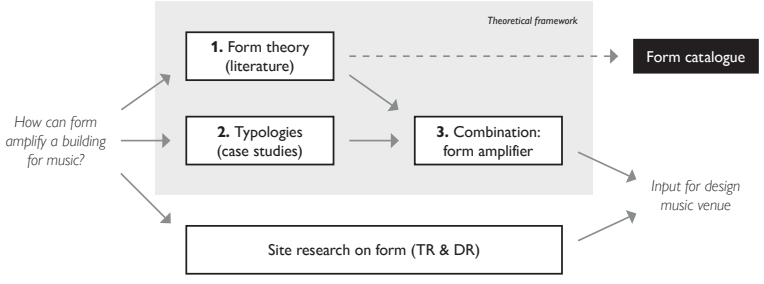

Fig. 3: Structure of the research on form as an amplifier. [by author].

RELEVANCE

The research will investigate if and how architectural forms can be used consciously to 'amplify' the visitor's experience in a design. With amplifying, strengthening or scaling up relevant aspects, the notion of an icon as well as the cultural importance of a building can increase and therefore it can make a design more convincing and more resilient. The outcome of the theoretical framework (i.e. the three parts of the research excluding the site specific research) and the research on forms that are present in the Binckhorst together form the direct input for the design of the music venue.

Next to that, the methodology of this research can be applied in a broader field, in other words: it can be used for strengthening aspects of other typologies as well (not only that of buildings for music). The first part of the theoretical framework, on form theory, can act as a basis for understanding the effects certain forms can give when it comes to experiencing a structure and provoking certain feelings. The second part, about what aspects of a certain typology can and need to be amplified, focusses on the specifics for a certain project and can be substituted for other types of buildings. The third step, of combining the form theory and the research on specific needs for typologies, together the theoretical framework (see diagram on the previous page), can be repeated.

METHODOLOGY

For the project research and the design process, several methods will be used. As introduced in the diagram of the research structure, the first part of the research will mainly consist of literature research on what architectural forms can do for the experience of a visitor of a building. Mainly classic theoretical pieces (see the paragraph on bibliography) within the field of architecture will be examined to establish an understanding of the relation between form and experience. The second part of the research will make use of case studies. For practicality and relevance, the same case studies will be used as have been analysed in the first quarter of the studio, for Project Design. With analysing these case studies on form, more knowledge will be acquired on typical forms, why they are used and what experiences for the visitors they potentially evoke. Main questions that will be asked with analysing the case studies on form are: why does it look like this? And: what do the shapes do (in the sense of experiencing the building)?



=



Why does it look like this?
What does it do?

Fig. 4a (left): Walt Disney Concert Hall / Frank Gehry. From "Archdaily," by P. Rümmele, 2013 (https://images.adsttc.com/media/images/5264/ac6c/e8e4/4e88/a000/01ff/large_jpg/Gehry_PhilippRuemmele_riotphotography.com.jpg?1382329446).

Fig. 4b (right): Abstraction of the forms of the Walt Disney Concert Hall by Frank Gehry. [by author].

Next to this, during the design process for the music venue in the Binckhorst, research by design will be done to get an understanding of the context and to implement the theoretical research findings in the design in order to find more profound design solutions that are specific for the site. The research within the TR and DR sub-courses (which is partially already done, see Appendices II, III and IV) will, as part of the analysis on the design location, contribute to the design process of the music venue.

Rümmele, P. (2013). Walt Disney Concert Hall / Frank Gehry. [Photograph]. https://images.adsttc.com/media/images/5264/ac6c/e8e4/4e88/a000/01ff/large_jpg/Gehry_PhilippRuemmele_riotphotography.com.jpg?1382329446

OBJECTIVE

The goal is to get a better understanding of the influence of architectural forms on the perception of a building, as well as to find clear answers on how these forms can contribute to creating a more immersive experience for visitors of a music venue.

Next to that, the first part of the research project within the theoretical framework, about form theory, leads to a 'catalogue' of forms, providing knowledge on what kind of forms can evoke what kind of experiences. The goal with this catalogue is to present a general conclusion which will be widely applicable within the field of architecture. The catalogue will be presented in a matrix-like way, showing fundamental forms and a list of experiences (or feelings), for example giving information like: "shape X may provoke feeling Y, therefore adding to the experience of Z".

CONTRIBUTION

As written in the paragraph 'Relevance', amplifying a design can increase the notion of an icon and the cultural importance of a building and therefore it can make a design more convincing and resilient. Besides, the research method is set up in such a way that it can be applied to and repeated for other disciplines or projects within the field of architecture. The catalogue of forms directly contributes to the broader discourse of the discipline by giving a clear overview of fundamental forms related to experiences and feelings one might have when interacting with a structure.

BIBLIOGRAPHY

The books presented below will be used for the literature research on the relation between form and visitor's experience of a building. This list is a proposal of (classical) theoretical books within the field of architecture of which I think are relevant for the research project. Throughout the research process, this list will probably be extended.

Alexander, C. (1964). *Notes on the Synthesis of Form.* Harvard University Press.

Alexander, C., Ishikawa, S., & Silverstein, M. (1977). *A Pattern Language: Towns, Buildings, Construction.* Oxford University Press.

Bachelard, G. (1964). *The Poetics of Space.* Presses Universitaires de France.

Bacon, E. N. (1967). *The Design of Cities.* Thames & Hudson.

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Corbusier, L. (1985). *Towards a New Architecture.* Dover Publications.

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Lynch, K. (1960). *The Image of the City.* The MIT Press.

Ungers, O. M., Koolhaas, R., Riemann, P., Kollhoff, H., & Ovaska, A. (1977). *The City in the City - Berlin: A Green Archipelago.* Lars Müller Publishers

Zumthor, P. (2006). *Atmospheres.* Birkhauser.

APPENDIX I: GROUP ABSTRACT

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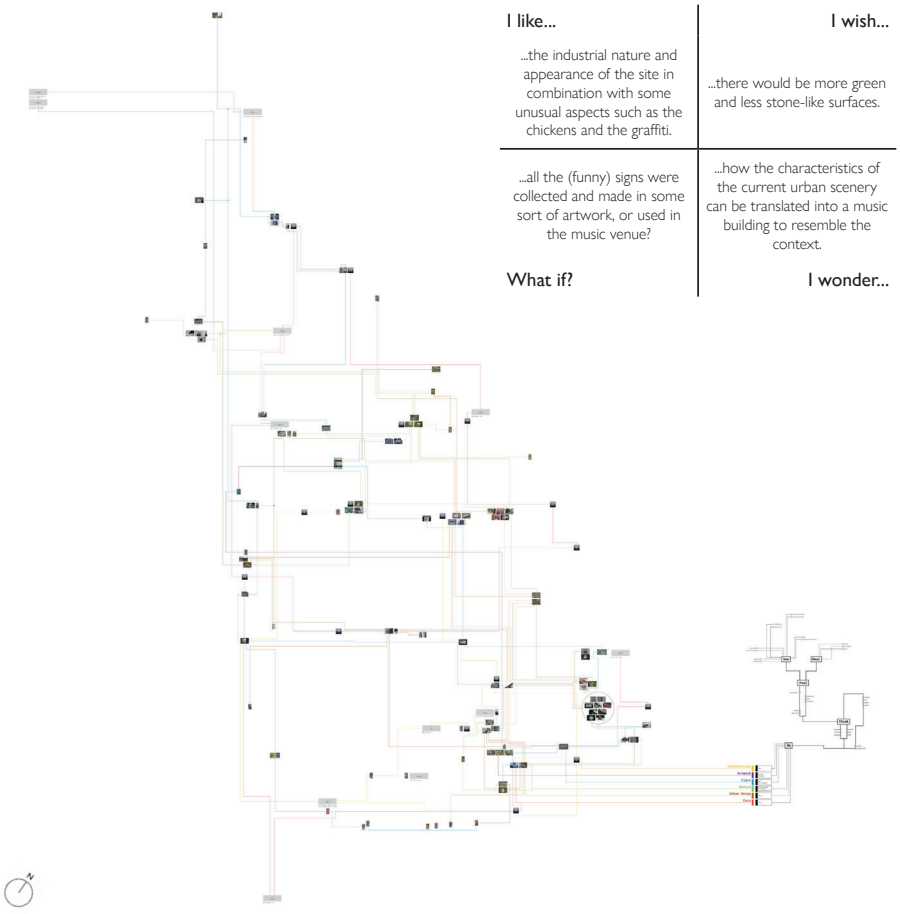
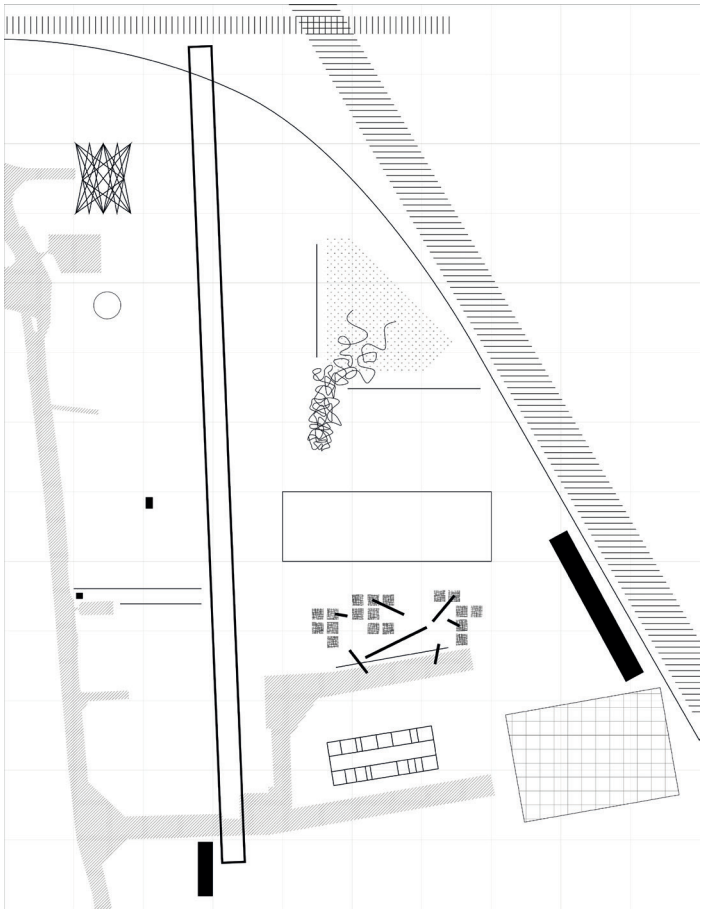
Abstract of Group 3 (Zsa-Zsa Brouwers, Chris Huisman, Phat Ho & Edgars Jane) on the use of an amplifier in relation to the creation of a music venue in the Binckhorst. Several ways of 'amplifying' are suggested in order to allow for personal fascinations to amplify with.

APPENDIX II: SITE & EMPATHY DIAGRAM



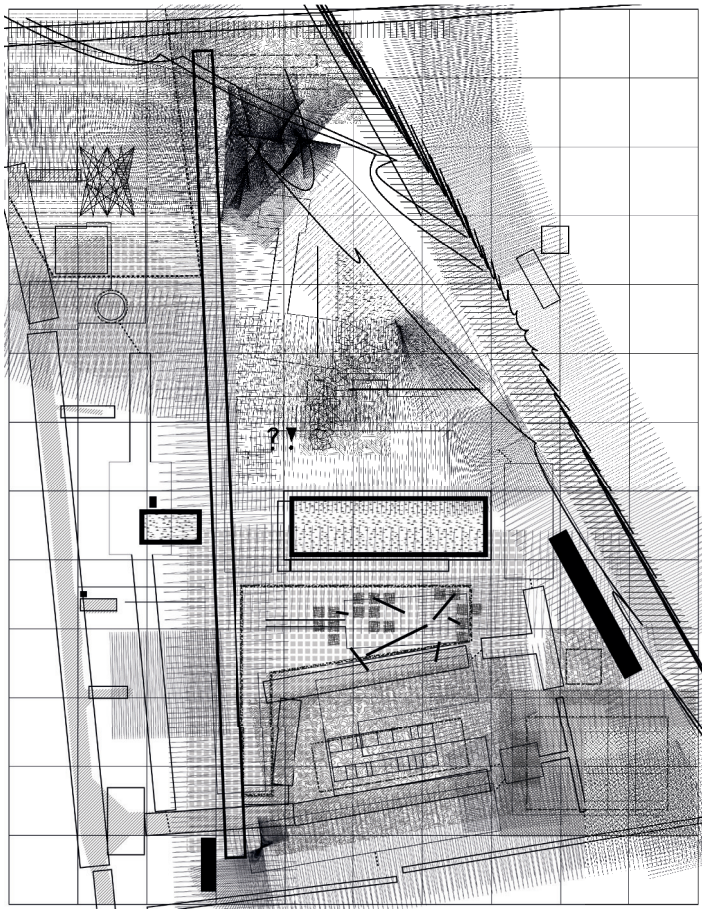
Site diagram of Group 3 (Zsa-Zsa Brouwers, Chris Huisman, Phat Ho & Edgars Jane) and the personal empathy diagram of what struck me about the site. The group site diagram is a visual representation of all (weak) signals or noise samples found in the Binckhorst, put in their exact location and visualised as if it were a circuit board. All samples are interconnected or 'wired' through one or several of a total of six different categories.

APPENDIX III: BINCKHORST FORMS



Notation of present and distinct forms that are found in the Binckhorst area. This abstract visualisation is one of the four layers of the group's notational composition (see Appendix IV), with the other layers being: Flexibility (by Zsa-Zsa Brouwers), Flow (by Phat Ho) and Frontiers (by Edgars Jane).

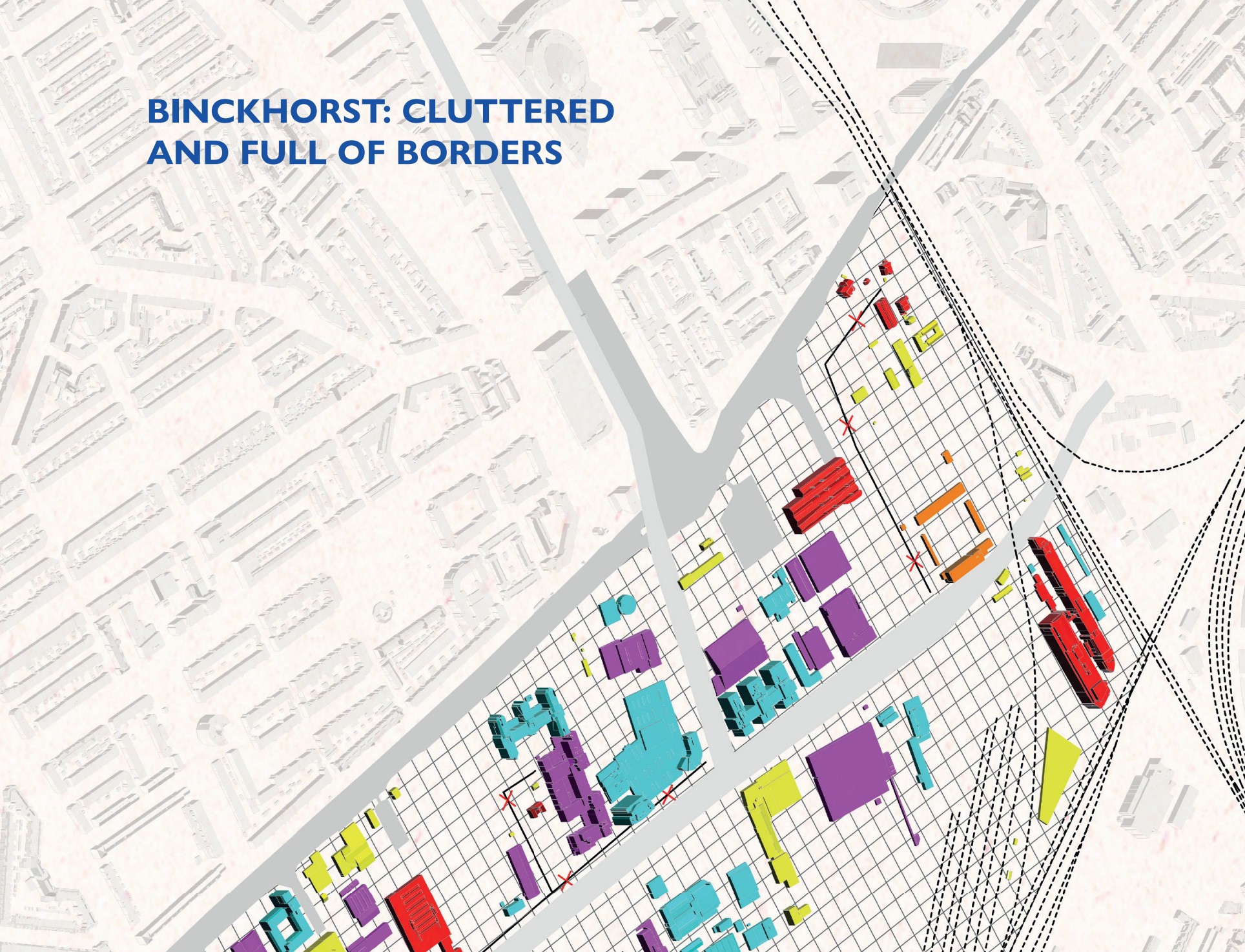
APPENDIX IV: NOTATIONAL COMPOSITION

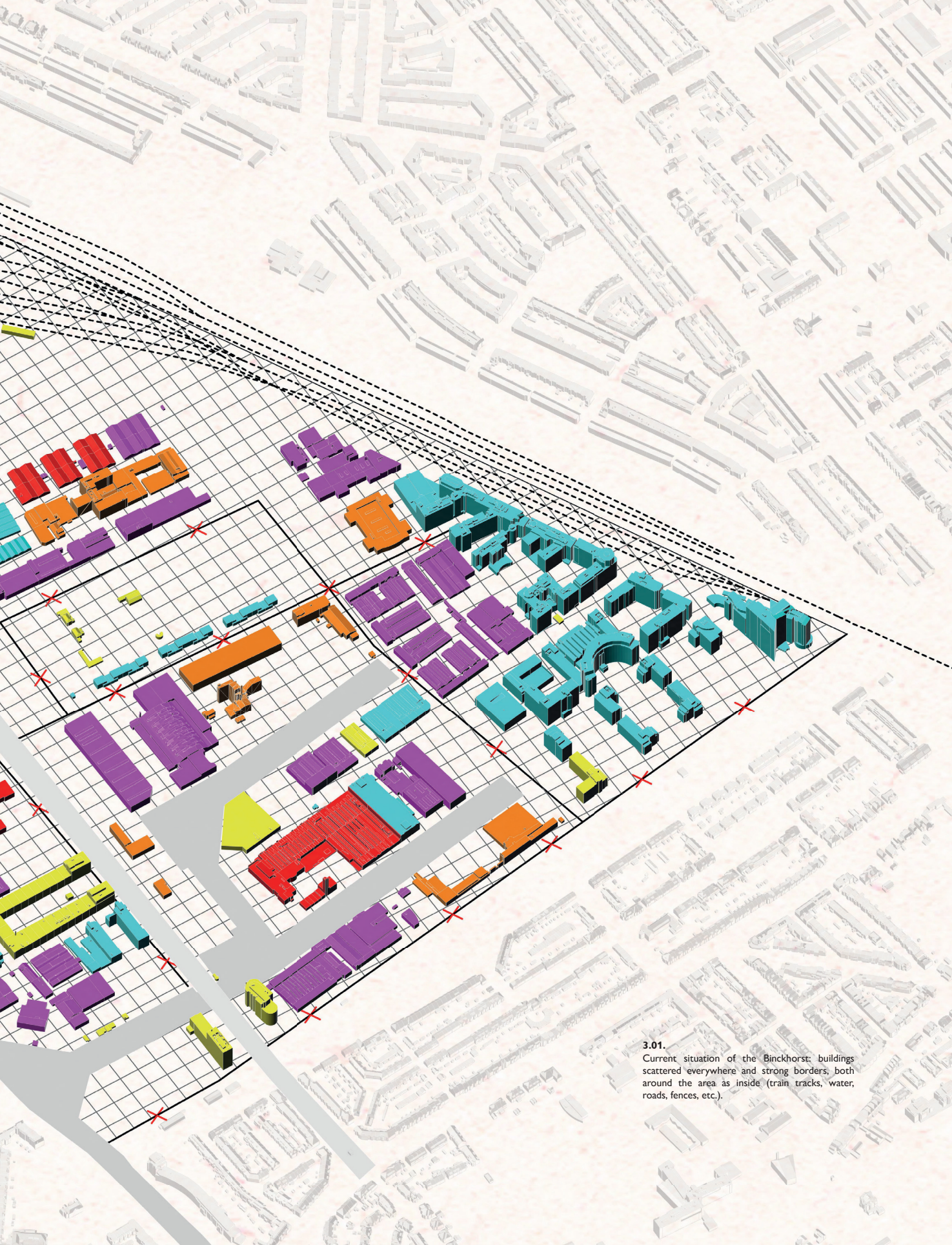


Complete notational composition by Group 3 (Zsa-Zsa Brouwers, Chris Huisman, Phat Ho & Edgars Jane) about the Binckhorst. The topics of the four layers of samples that can be amplified all come from a personal fascination, together creating a superimposed image of possibilities within the site that can act as an imput for amplification.

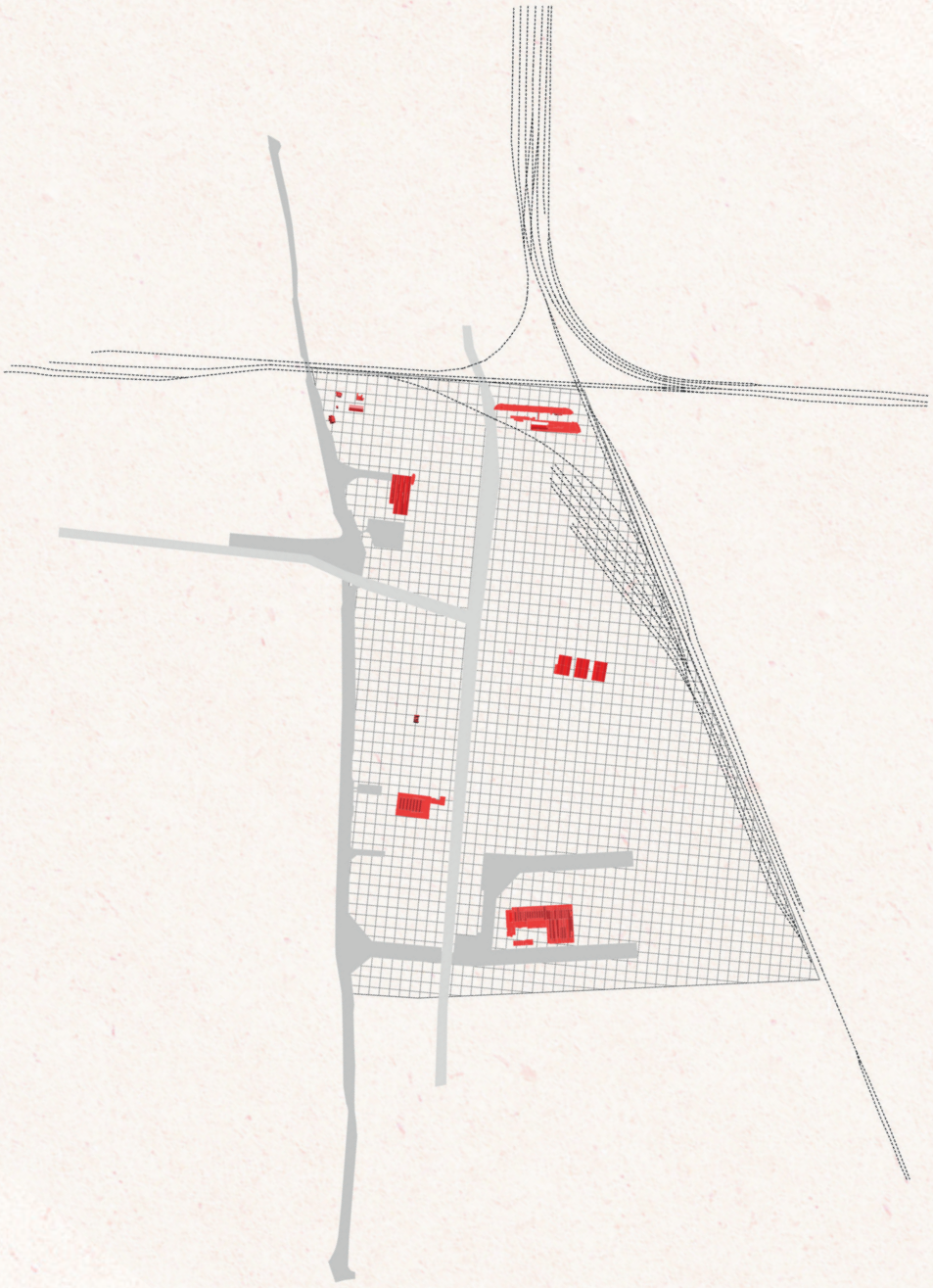
3. DELINEATION

BINCKHORST: CLUTTERED AND FULL OF BORDERS





3.01.
Current situation of the Binckhorst: buildings scattered everywhere and strong borders, both around the area as inside (train tracks, water, roads, fences, etc.).



TABULA -ALMOST- RASA

TAKING OUT: TAXONOMY

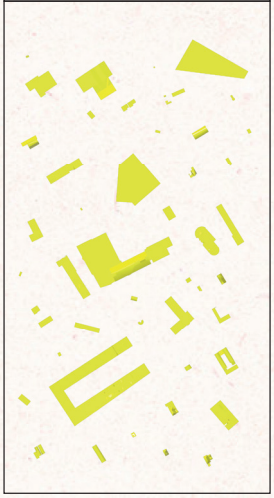
1. WAREHOUSES
Amount of structures: 52
Characteristics: squares, rather large



2. OFFICE BUILDINGS
Amount of structures: 51
Characteristics: quite diverse



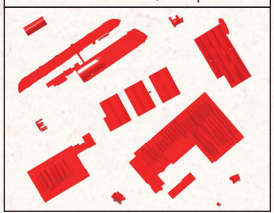
3. OTHER STRUCTURES
Amount of structures: 52
Characteristics: some large, most small



4. INDUSTRY
Amount of structures: 23
Characteristics: very diverse

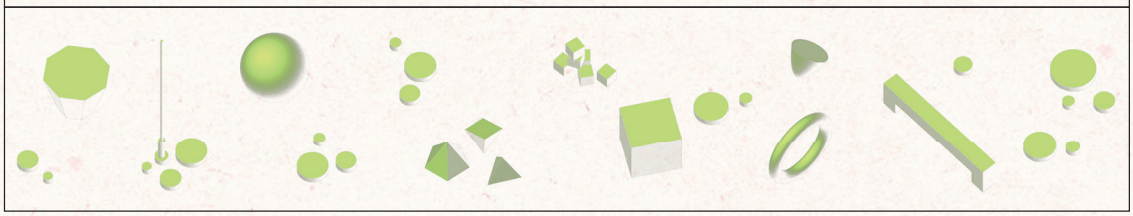


5. MONUMENTS
Amount of structures: 15
Characteristics: Diverse, fixed place



RELOCATE: MAX. MIXING

NEW PROGRAM - AMPLIFICATION: MUSIC MARVEL / LIVING / LEISURE / ETC.
Characteristics: distinctive shapes, iconity, strengthens the Binckhorst



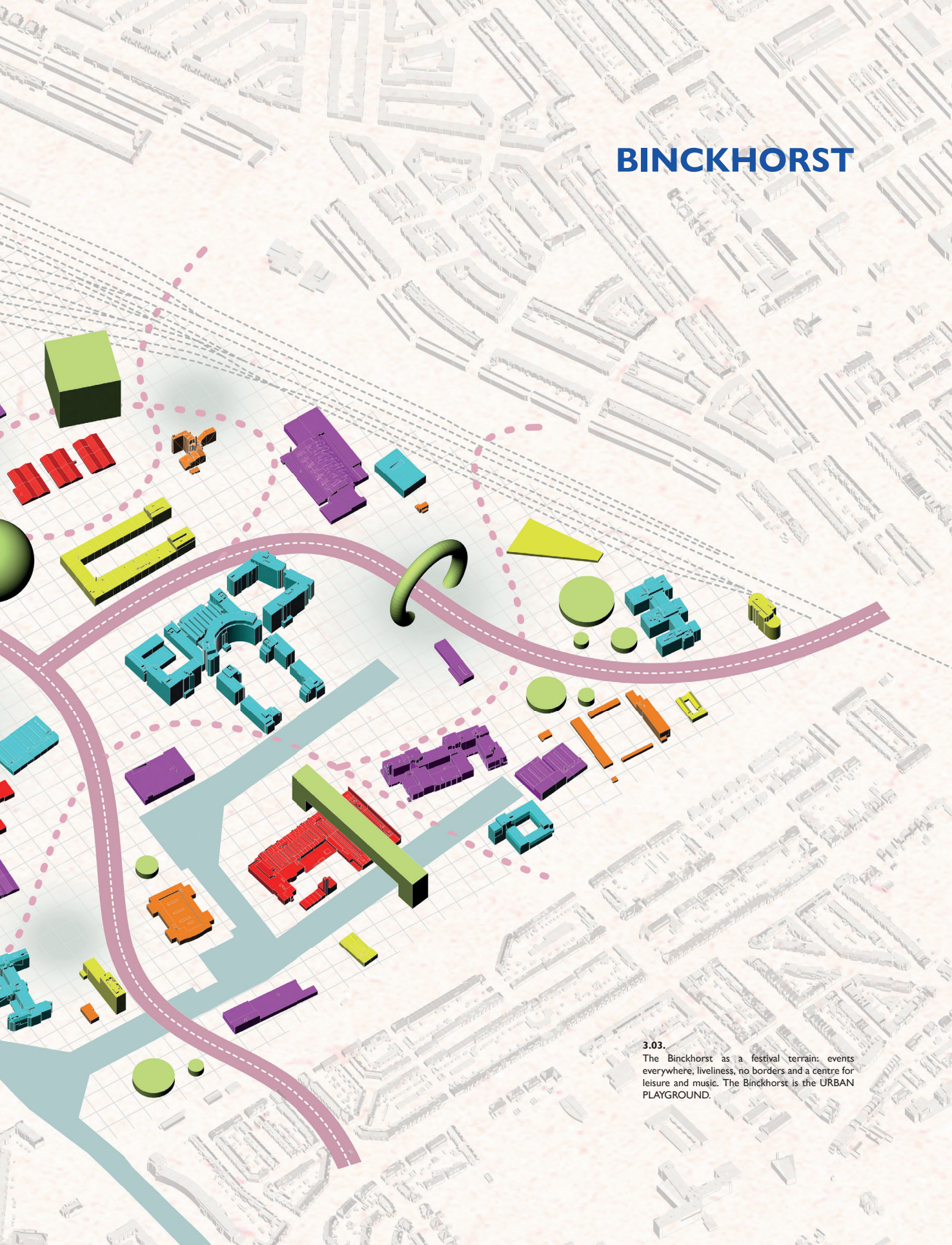
= BINCKHORST FESTIVAL

3.02.
Taking out everything that can be taken out: what is left is a tabula -almost- rasa. Classify everything that was there and compose the Binckhorst again, adding program with distinct forms to amplify the Binckhorst as a festival.



FESTIVAL

BINCKHORST



3.03.
The Binckhorst as a festival terrain: events everywhere, liveliness, no borders and a centre for leisure and music. The Binckhorst is the URBAN PLAYGROUND.

THE BINCKHORST FESTIVAL

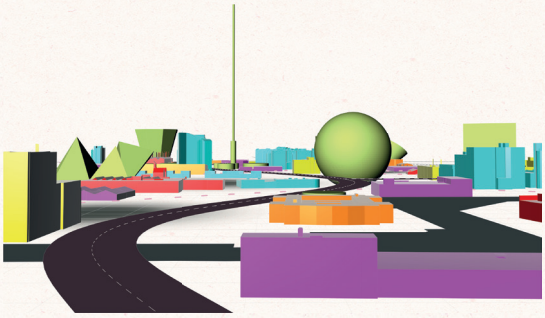
The current situation of the Binckhorst has potential, there is a lot of activity going on which means it is lively. However, at the same time it is chaotic and clogged. Buildings are scattered everywhere and it lacks organisation. Next to that, the area is characterised by strong borders, both around the Binckhorst as inside. In order to amplify the liveliness of the neighbourhood and in order to connect the Binckhorst to the rest of the city, the borders need to be taken away, it needs to be cleaned and the place needs structure.

In a fictional way, this means that, at first, all buildings that can be taken away will be taken away. What is left is a tabula -almost- rasa: only the monuments, the water and some of the infrastructure remains. All the buildings that have been taken out are classified into different categories and after that placed back again, carefully composing a Binckhorst where functions and activities mix as much as possible.

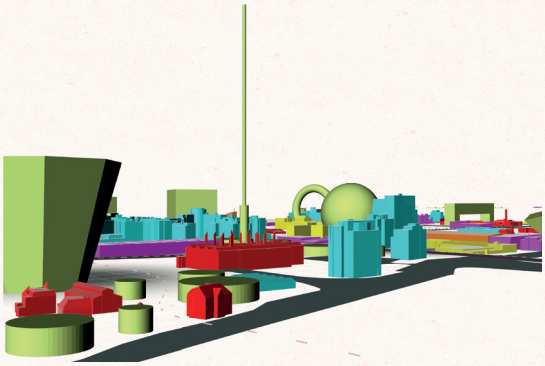
On top of that, new program and therewith new activities are added to the Binckhorst: of course a Music Marvel, but next to that dwellings and public program for leisure activities. By giving these new additions distinctive shapes, they too amplify the Binckhorst, Not only by program, but also by architectural design. This way, the Binckhorst can become a new music-focused center and the urban playground for The Hague.

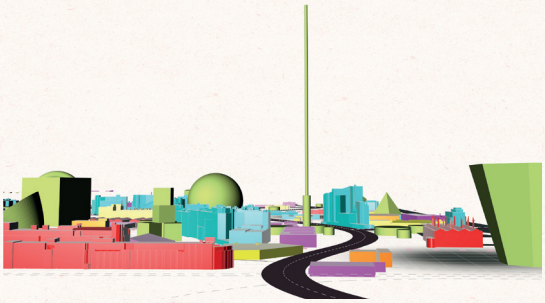
3.04. (right page)
Elevation and some perspective views showing the playful collage that is the Binckhorst festival. Distinct forms amplify the experience, creating an URBAN PLAYGROUND.



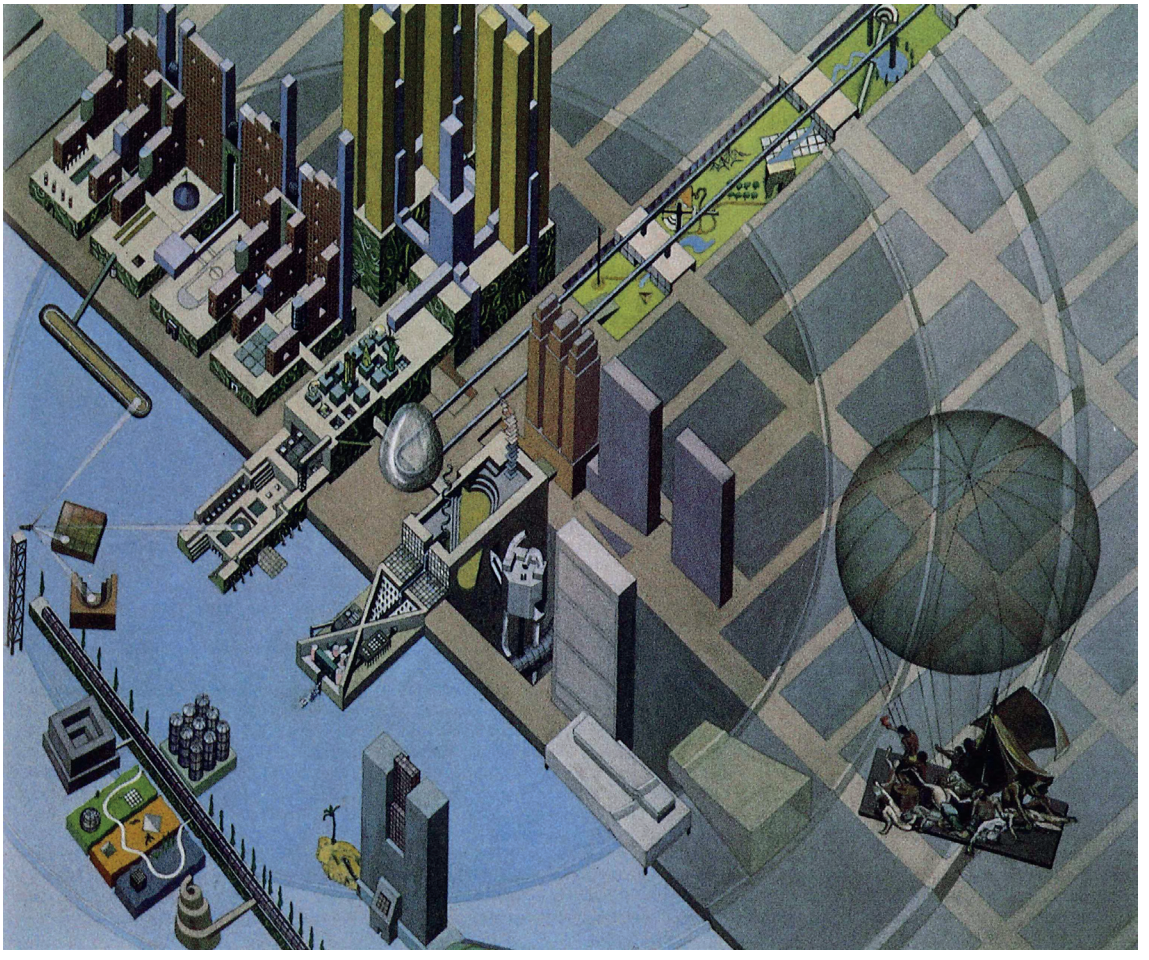








PREVIOUS MANIFESTOES: ANALYSIS AND INTERPRETATIONS



This chapter gives an overview of the delineation research (groupwork) done by Zsa-Zsa Brouwers, Phat Ho, Chris Huisman & Edgars Jane. Left pages: original manifesto, right pages: analysis and interpretation.

EGG OF COLUMBUS CIRCLE PROJECT, 1973
Elia Zenghelis, Zoe Zengelis, Rem Koolhaas, Madelon Vriesendorp

3.05. (above)
Egg of columbus circle manifesto.

3.06. (right page)
Group analysis and interpretation.

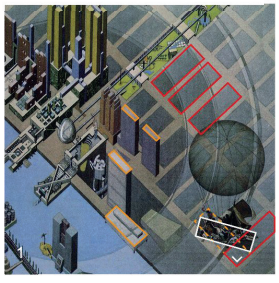
System



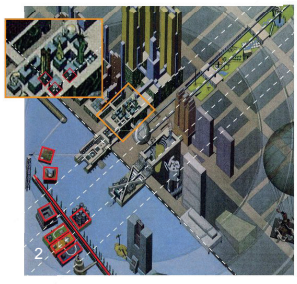
Dérive



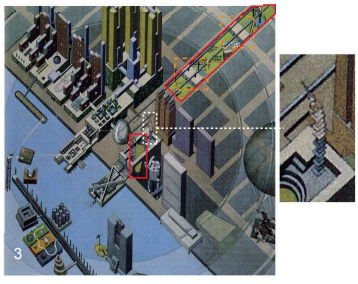
Dérive



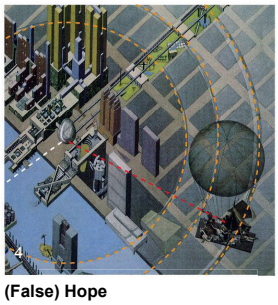
Atomization



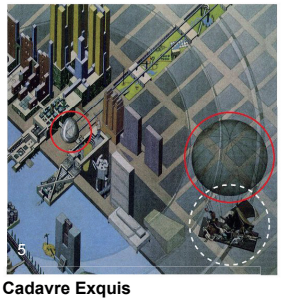
Disarticulation/Dismembering



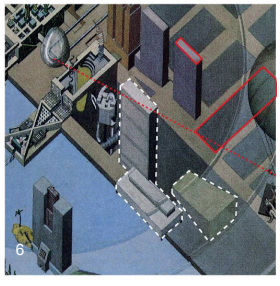




(False) Hope



Cadavre Exquis



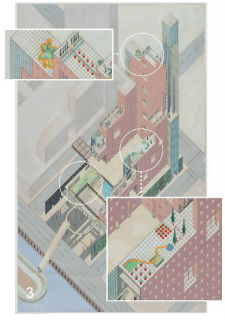
Dérive



Disarticulation



Contrast

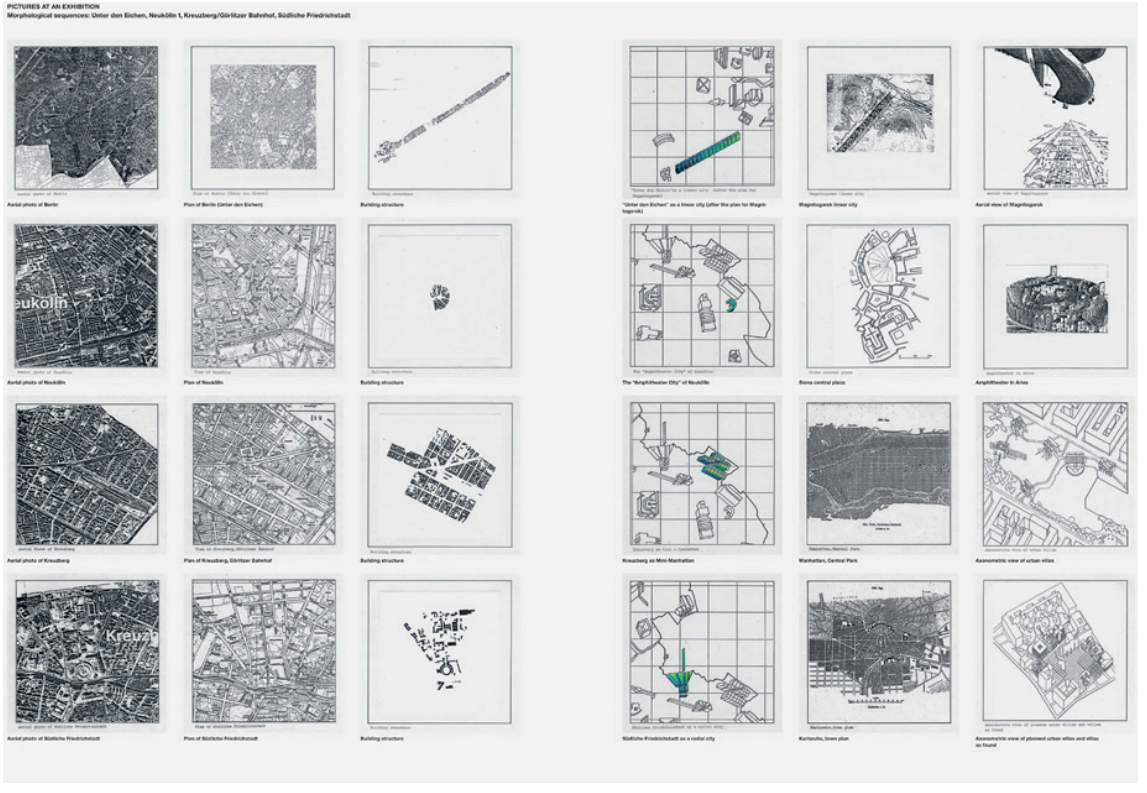


Dérive
State of Exception



Cadavre Exquis



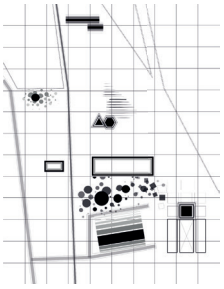


THE CITY IN THE CITY. BERLIN: A GREEN ARCHIPELAGO
Oswald Ungers & Rem Koolhaas

3.07. (above)
The City in the City: typological research.

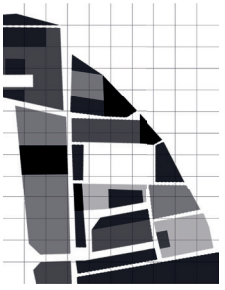
3.08. (right page)
Group analysis and interpretation.

THE CITY IN THE CITY. BINCKHORST: → ISOLATION, TRANSPOSITION & ANALOGY



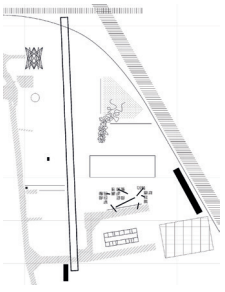


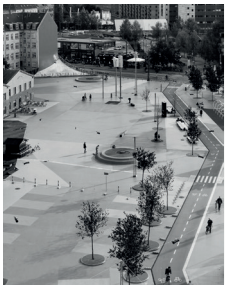
FLOW



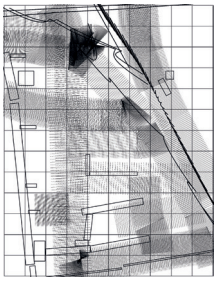


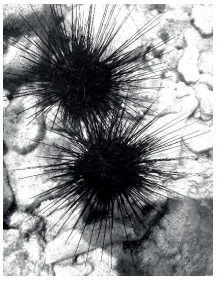
FLEXIBILITY



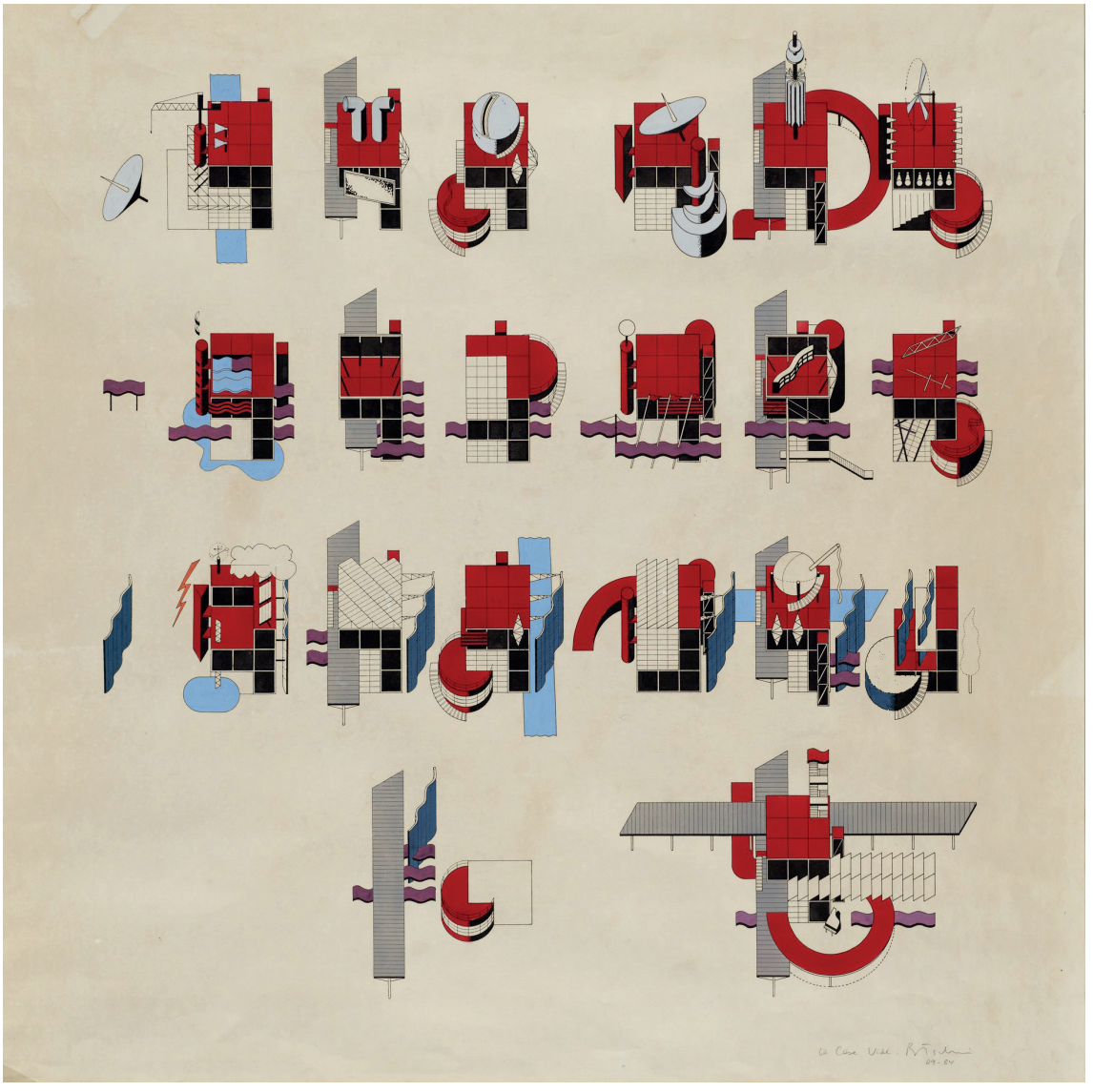


FORM





FRONTIERS

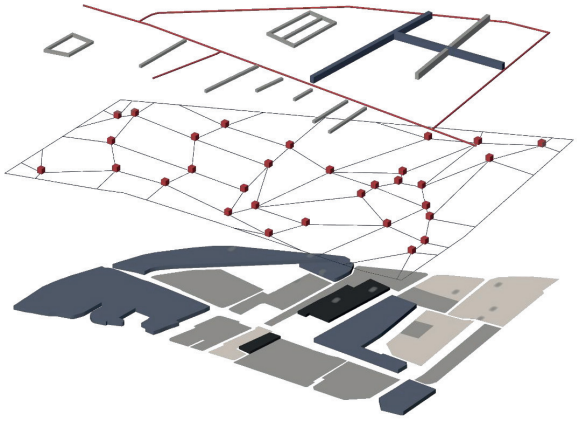


PARC DE LA VILLETTE,
1982-1998
Bernard Tschumi

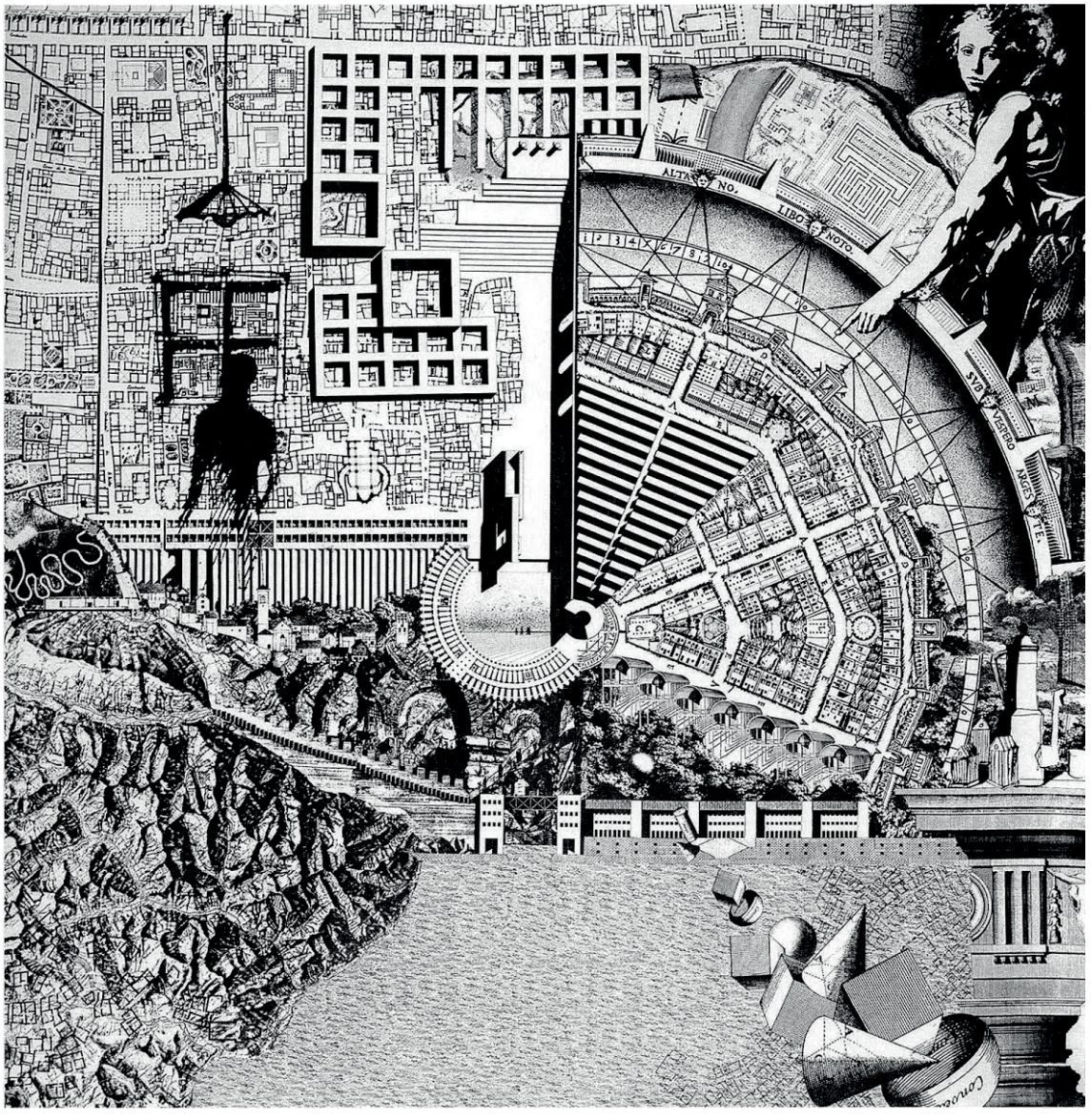
3.09. (above)
Parc de la Villette, axonometric of follies.

3.10. (right page)
Group analysis and interpretation.

Motivation:	Elements:	Interpretation:
Space	**Points**	Centers for program. Points as cultural 'hotspots' in Binckhorst.
Movement	**Lines**	Intersections and connections of interest & surroundings. Pathways connecting points and flows within Binckhorst.
Events	**Surfaces**	Space to interact, play, relax, gather, green areas. Existing "Binckhorst Zones".







LA CITTÀ ANALOGA, 1976
Aldo Rossi

3.11. (above)
La Città Analoga collage

3.12. (right page)
Group analysis and interpretation.


A12
REAL
FLETTERIJ
EINDHOVEN
DELFT

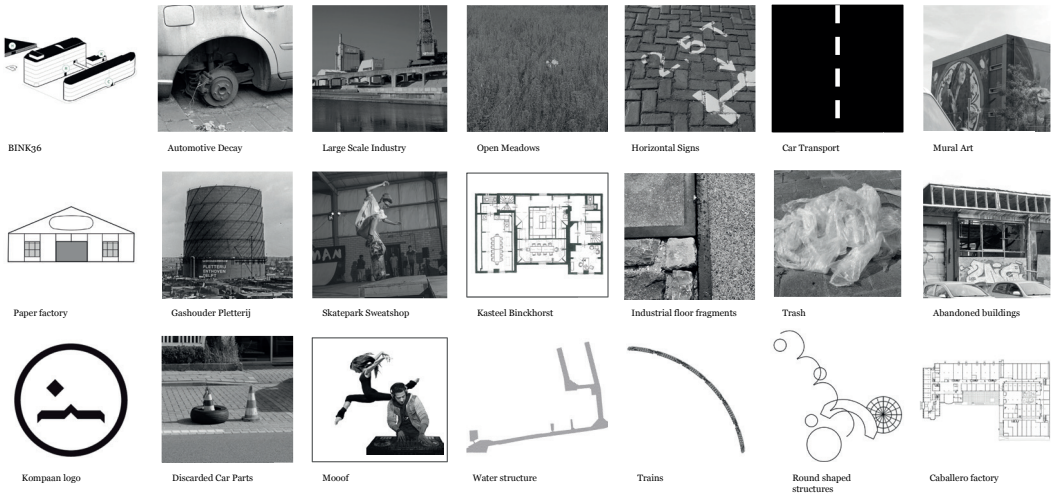
Collage Isolated



References of the Analogue Binckhorst *isolated*

References of the Analogue Binckhorst *revealed*

Collage Catalogue



References of the Analogue Binckhorst *revealed*

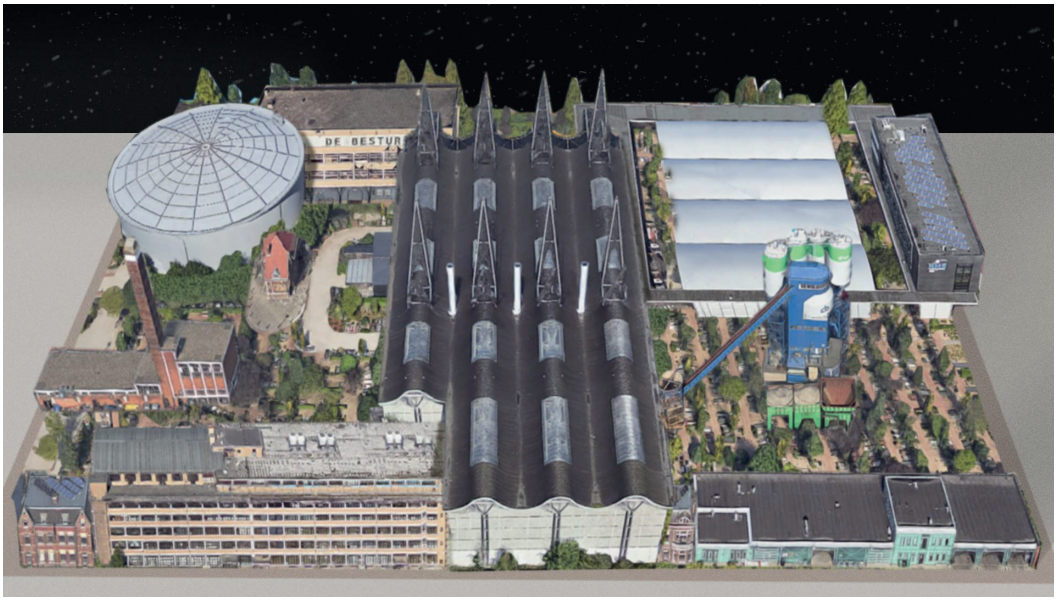
3.13. (above)
Group analysis and interpretation.

3.14. (right page)
Additional images created for the topics "cappricio" and "assemblage", related to Rossi's manifesto.

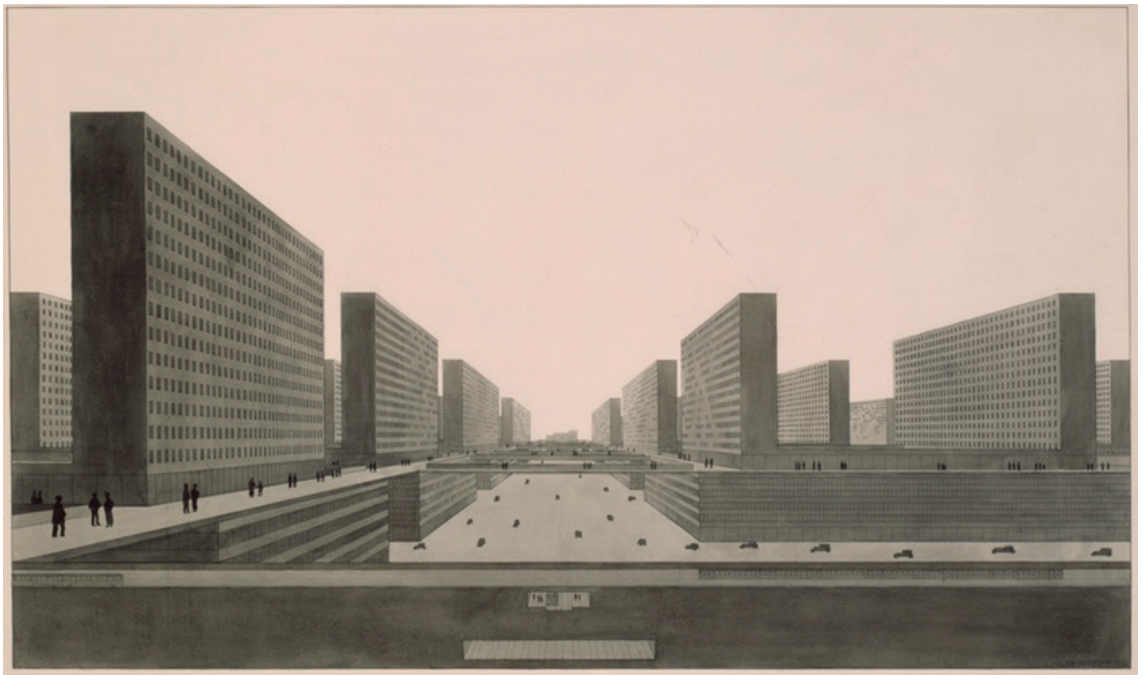
CAPRICCIO



ASSEMBLAGE



'The city remembers its past ..'



HOCHHAUSSTADT, 1924
Ludwig Hilberseimer

3.15. (above)
Hochhausstadt perspective view north-south street.

3.16. (right page)
Group analysis and interpretation.

THE ANTI HOCHHAUSSTADT

~~hierarchy: car > human~~ hierarchy: human > car
~~one typology (uniform)~~ all typologies (mix)
~~maximum efficiency~~ minimum efficiency



BINCKHORST?

Hochhausstadt ⟷ **ANTI Hochhausstadt**

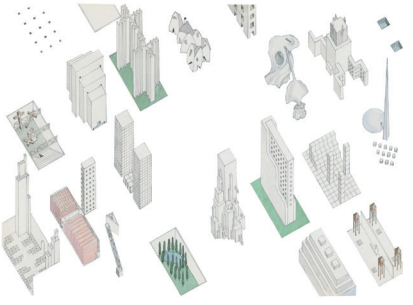




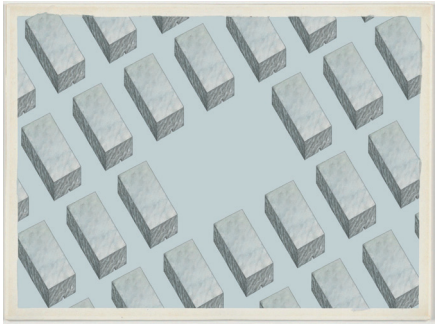
THE CITY OF THE CAPTIVE GLOBE PROJECT, 1972
OMA, Rem Koolhaas

3.17. (above)
The City of the Captive Globe Project, New York.

3.18. (right page)
Group analysis and interpretation.



The ‘Capital of Ego’, each discipline or institute has its own plot



Identical base of polished stone to provide an equal, unbiased starting point

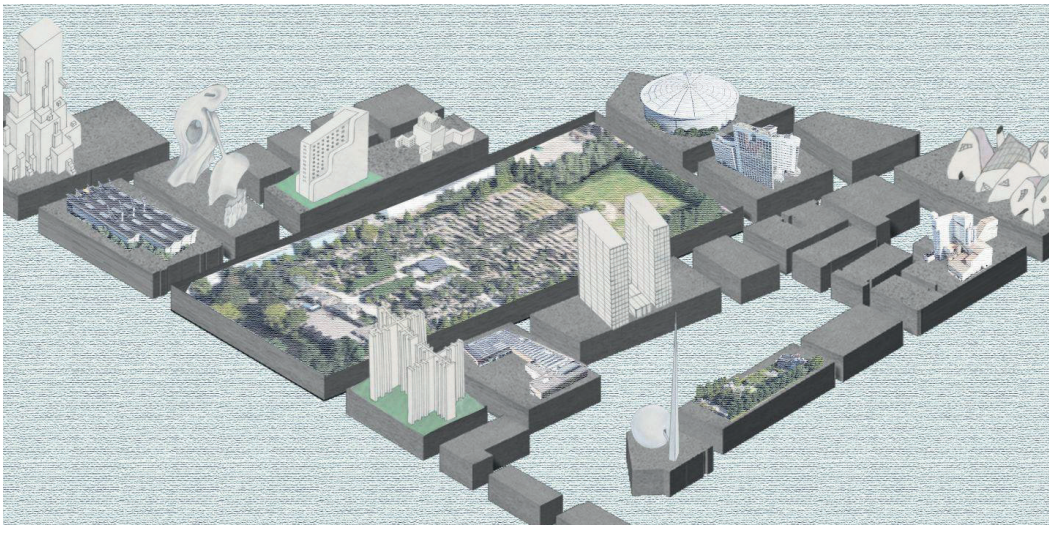


From each base, the disciplines can freely expand towards the sky

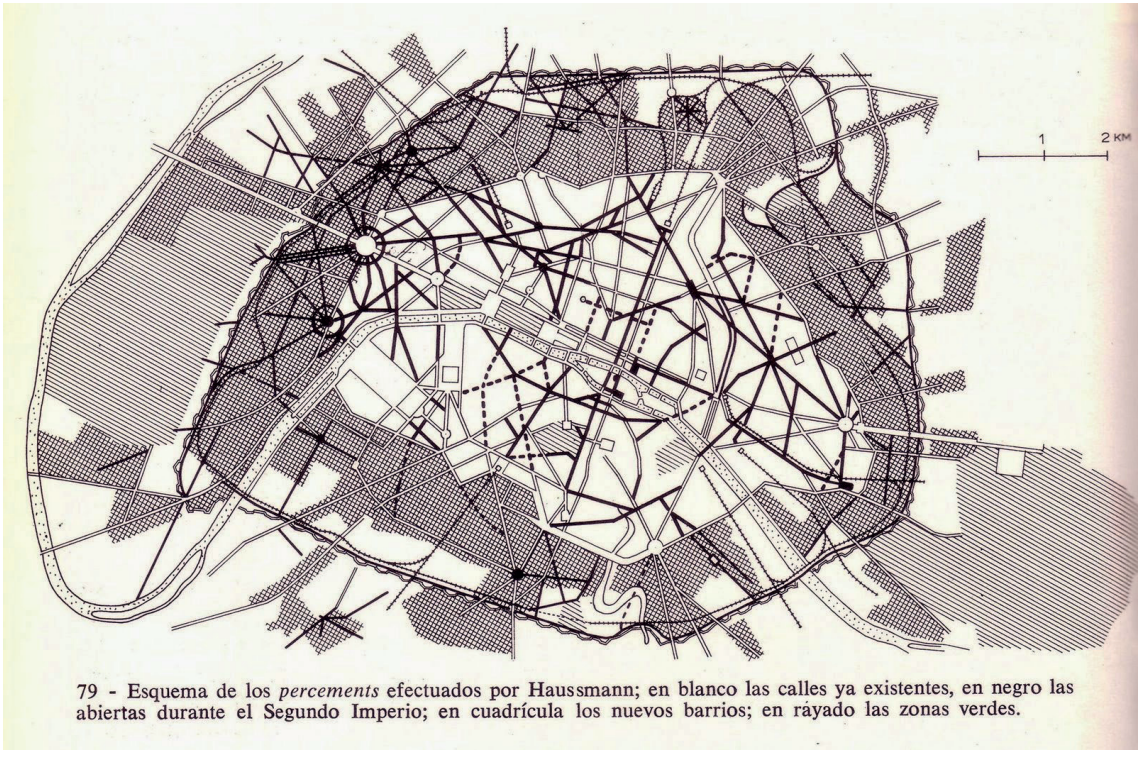


The world is captured in between all these disciplines >>> incubator of the world

The Binckhorst as urban playground



From each base, the disciplines can ~~freely~~ dialectically expand towards the sky



79 - Esquema de los *percements* efectuados por Haussmann; en blanco las calles ya existentes, en negro las abiertas durante el Segundo Imperio; en cuadrícula los nuevos barrios; en rayado las zonas verdes.

HAUSSMANN'S RENOVATION OF PARIS, 1853-1870
Georges-Eugène Haussmann

3.19. (above)
Haussmann's plan for Paris, map.

3.20. (right page)
Group analysis and interpretation.

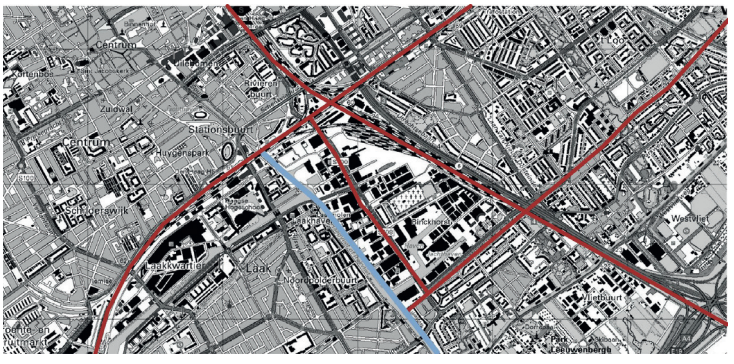
excavate the fabric to make the city more beautiful

~~*excavate*~~ ***fill*** *the fabric to make the city* ~~*more beautiful*~~

1876



2015







Backside of Paris boulevards & plan for towers on top of industrial warehouses in the Binckhorst (by Mei Architects) >>> the end result is the same

4. DESIGN BRIEF

PROGRAM - NUMBERS

PROGRAM	# UNITS	M2 / UNIT	TOTAL M2
MAIN CONCERT HALL			
Main large hall specifically for music: shoebox style and flexible so that both symphonic orchestral concerts as pop concerts (amplified music) can take place here. For 1.500 - 3.000 persons.			
Stage (proportion 2:1)	1	500	500
Back stage	1	250	250
Side stages	1	100	100
Private dressing room	4	15	60
6-8 person dressing room	4	40	160
20-25 person dressing room	2	90	180
Concert hall (shoebox, proportion 1:2,5)	1	2.500	2.500
Bar	1	100	100
Balconies	1	500	500
VIP-area	1	200	200
Green room	1	60	60
Crew area	1	60	60
Stage director's room	1	20	20
Orchestra pit	1	70	70
TOTAL MAIN CONCERT HALL:			4.760
SECOND CONCERT HALL / THEATER			
Second stage for both musical concerts as well as theater plays, adding to the notion of multiplicity and also bringing together multiple arts and genres. For 1.000 - 1.500 persons.			
Stage (proportion 2:1, with fly tower)	1	200	200
Back stage	1	100	100
Side stages	1	100	100
Private dressing room	2	15	30
6-8 person dressing room	2	40	80
Concert hall (proportion 1:2,5)	1	1.000	1.000
Bar	1	50	50
Balconies	1	150	150
Crew area	1	30	30
Stage director's room	1	20	20
TOTAL SECOND CONCERT HALL / THEATER:			1.760
CHAMBER MUSIC ROOM			
Third stage for chamber music performances (more intimate, jazz, etc.), flexible in such a way that other performances can take place here as well (stand-up comedy for example). For 500-750			
Stage (proportion 2:1)	1	50	50
Back stage	1	25	25
6-8 person dressing room	1	40	40
Concert hall	1	400	400
Bar	1	25	25
TOTAL CHAMBER MUSIC ROOM:			540

AUDIENCE & PUBLIC			
Waiting line	1	500	500
Entrance area	1	1.000	1.000
Exhibition space	1	500	500
Shop	1	200	200
Foyer main concert hall	1	1.000	1.000
Foyer second concert hall / theater	1	700	700
Foyer chamber music room	1	200	200
Wardrobe	3	100	300
Cassier	1	50	50
Restrooms	10	25	250
Cafe	1	200	200
Restaurant	1	300	300
Kitchen	1	100	100
Extra circulation space (including stairs, etc.)	1	1.000	1.000
TOTAL AUDIENCE & PUBLIC:			6.300

ARTISTS & STAFF			
Artist entrance	1	50	50
Rehearsal rooms	10	100	1.000
Study room	4	40	160
Video recording room	1	40	40
Recording studio	2	50	100
First aid room	2	30	60
Office space	1	300	300
Supporting spaces (kitchen, restrooms, etc.)	1	100	100
TOTAL ARTISTS & STAFF:			1.810

SUPPORT			
Storage	8	100	800
Technical spaces (+10% of GFA)	1	1.800	1.800
Car parking (300 cars, indoors)	1	6.000	6.000
Bicycle parking (indoors)	1	750	750
TOTAL SUPPORT:			9.350

TOTAL PROGRAM (GFA): 24.520

OUTSIDE PROGRAM			
Loading area (3 trucks)	3	80	240
Outdoor amphitheater (park)	1	2.000	2.000
Terraces	1	500	500

TOTAL PROGRAM EXTERIOR: 2.740

NOTE: based on the example brief shown in the studio handbook. All sizes above are indications of the gross area, for nett area, see calculations later.

PROGRAM - VISUALISED

CONCERT HALLS



Chamber music room
(22 x 22 x 12) - 500 m2



Second concert hall / theater,
stage & balconies
(44 x 22 x 15) - 1.350 m2



Main concert hall, (back / side) stage,
balconies & orchestra pit
(80 x 32 x 20) - 3.920 m2

TOTAL: 5.770 m2

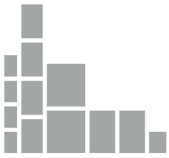
SUPPORT (PRIVATE)



Backstage & dressing
65 m2



Backstage, side stages, dressing rooms & crew
360 m2



Dressing rooms, green room & crew
540 m2

TOTAL: 965 m2

FOYERS (PUBLIC)



Foyer & bar
225 m2



Foyer & bar
750 m2



Foyer, VIP-area & bar
1.300 m2

TOTAL: 2.275 m2

ENTRANCE + CONCERTS SUPPORT



Circulation, entrance, waiting line, wardrobes, Cassier & Restrooms
3.100 m2

TOTAL: 3.100 m2

OTHER



Exhibition, shop
1.300 m2

TOTAL: 1.30

4.01.
Total program for the music venue, visualised in blocks. Blue = concert halls, orange = public space, gray = private / artists space.

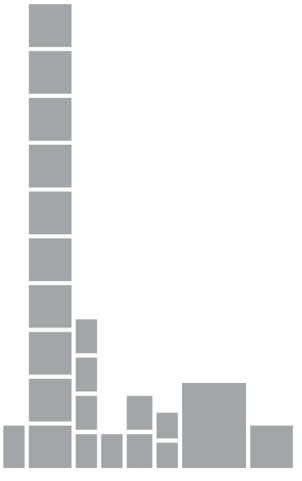
(CAFE, SHOP, ETC.)



, restaurant, cafe & kitchen

0 m2

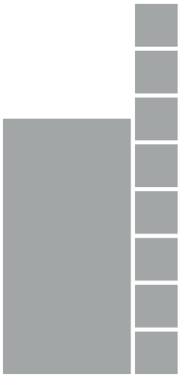
ARTISTS & STAFF



Entrance, Rehearsal, study, video, recording, first aid, office & support
1.810 m2

TOTAL: 1.810 m2

TECHNICAL



Technical space (+10% GFA) & storage
2.600 m2

TOTAL: 2.600 m2

PARKING



Car parking (300 cars) & bicycle parking
6.750 m2

TOTAL: 6.750 m2

GRAND TOTAL: 24.570 m2

DESIGN DESCRIPTION

TYPE OF VENUE

Hybrid venue with a focus on a concert hall, with rehearsal rooms, a second hall or theater, studio's, public functions such as restaurant, museum, shops, etc. Maybe a concert hall for symphonic music could be combined with amplified music genres (multiple rooms/facilities?) to attract a broader audience but also to mix genres.

References: Amare, Philharmonie de Paris, TivoliVredenburg, Elbphilharmonie, Casa da Música, Cité de la Musique

CONTEXTUAL REQUIREMENTS

Dense urban context, surrounded by public space and/or a park. Multiple access points (interior and exterior is blurred), surrounding buildings have supporting functions such as restaurants, shops, hotels and other cultural program. The music venue is extremely well connected to the public transport network (visitors) as well as to the road network (logistics).

PROJECT BRIEF

Size: large, multiple concert halls, supporting functions, blended with direct surroundings (public space).
Complexity: very complex, large venue combined with iconic architecture (for example: Philharmonie de Paris).
Iconic value: iconic object, sculpture, gem proudly sitting in its surroundings.

Total venue size: 15.000 - 20.000 m2
(Philharmonie de Paris = 19.800 m2)
(Casa da Música = 22.000 m2)
(TivoliVredenburg = 31.000 m2)

Concert space includes: main stage, back and side stages, dressing rooms, concert hall seating space, bar, balconies, VIP-areas, crew area, director's room, orchestra pit.

Visitors space includes: entrance and foyers, waiting lines, wardrobes, ticket desks, restrooms, cafe/bar, restaurant, kitchen, shop, maybe a museum.

Dedicated access spaces include: artist entrance, rehearsal rooms, recording studios, office space, artist lounge.

Supporting space includes: traffic space, storage, technical space, loading areas.

KEY ASPECTS

Festival idea: multiple genres are performing on different stages, all within a large open space. Therefore, the building for music will have three halls within one venue:
- a large and formal concert hall (mainly symphonic music but flexible layout so that other genres can perform here too), capacity = 1.500 - 3.000 persons.
- a second hall / theatre hall (all sorts of genres + theatre plays, musicals, stand-up comedy, etc. focus on multiplicity through varying program and bringing together multiple arts and genres), capacity = 1.000 - 1.500 persons.
- a chamber music room / jazz hall (mainly jazz and experimental music, intimate atmosphere, flexible same level floor), capacity = around 500 persons.

A dense urban context plus the ambition to have a lot of highrises in the Binckhorst calls for verticality, the idea to stack program, create vertical streets. Next to that, verticality will add to the iconic character of the venue because the building will be more visible.

In a festival you can (almost) go wherever you want, i.e. everything is very open. For the music venue this means that the border between interior and exterior will be as little as possible: transparancy is key. This also means that outside program could happen inside and vice versa. With this, the idea is that the public spaces within the venue are a direct extension of the public space (the park) outside.

FORM is the main topic of research and will also be one of the main topics for the design itself. It is a festival of forms, distinct masses, each one of them with their very one characteristics, float around in a space where visitors can explore endlessly. Since concert halls (and theatre halls) usually have a strong focus inwards, they can be very sculptural, strengthening the experience of unique forms composed together in a large festival space.

Ultimately, the goal is to amplify. Amplify the Binckhorst by mixing program, removing borders and adding an iconic music venue (as explained in the manifesto). Next to that, and coming from the theoretical framework that will be conducted alongside this design project, architectural form itself becomes the amplifier for the experience of the venue.

CALCULATIONS

AREA CALCULATIONS

The presented program is an indication of the total size as gross area: 24.570 m^2. To get an idea of the nett area of the music venue, the following equation will be used:

nett area + tarra = gross area

However, since the program is put together using gross area and therefore the nett area is unknown, the equation will be:

gross area - tarra = nett area

Tarra is unknown too but a rough estimation can be made knowing in general nett area measures about 85 - 90% of the gross area, meaning tarra will be about 10 - 15% of the gross area. Since it is expected that a concert hall will need more space than usual (for special constructions and acoustic solutions: freestanding foundation, box-in-a-box principle, etc.), the portion of 'tarra' will be defined as about 20 - 25%, meaning that the nett area of the music venue will be about 75 - 80% of the gross area:

*gross area * 75 to 80% = nett area*

Filling in the equation using *gross area = 24.570 m^2* gives us:

*24.570 * 75 to 80% = 18.428 to 19.656 m^2*

meaning, the nett area of the music venue will sit roughly between **18.500 and 19.500 m^2**.

VOLUME CALCULATIONS

To give an estimation of the total volume of the music venue, the gross floor area can be multiplied by an average floor height. Because the concert halls have extra height and the circulation spaces too (because of the ambition to create the feeling of an open structure, a festival with vertical streets), the floor height for these spaces will be determined at 8 - 12 meters high on average.

The gross area of the three concert halls combined is: 5.770 m^2 (see previous page). Spaces that are categorised as 'circulation spaces' are: entrance area, waiting line, foyer main concert hall, foyer theatre hall, foyer chamber music room and extra circulation space, combined: 4.400 m^2. The concert halls and circulation spaces together have a gross area of: 10.170 m^2.

Since extra construction is needed and to give a 'grande' appearance to this public building, the average floor height for all the other program will be set to 4 meters. The other program is the total program minus the concert halls and circulation spaces:

24.570 - 10.170 = 14.400 m^2

This means that the total volume of the music venue will be:

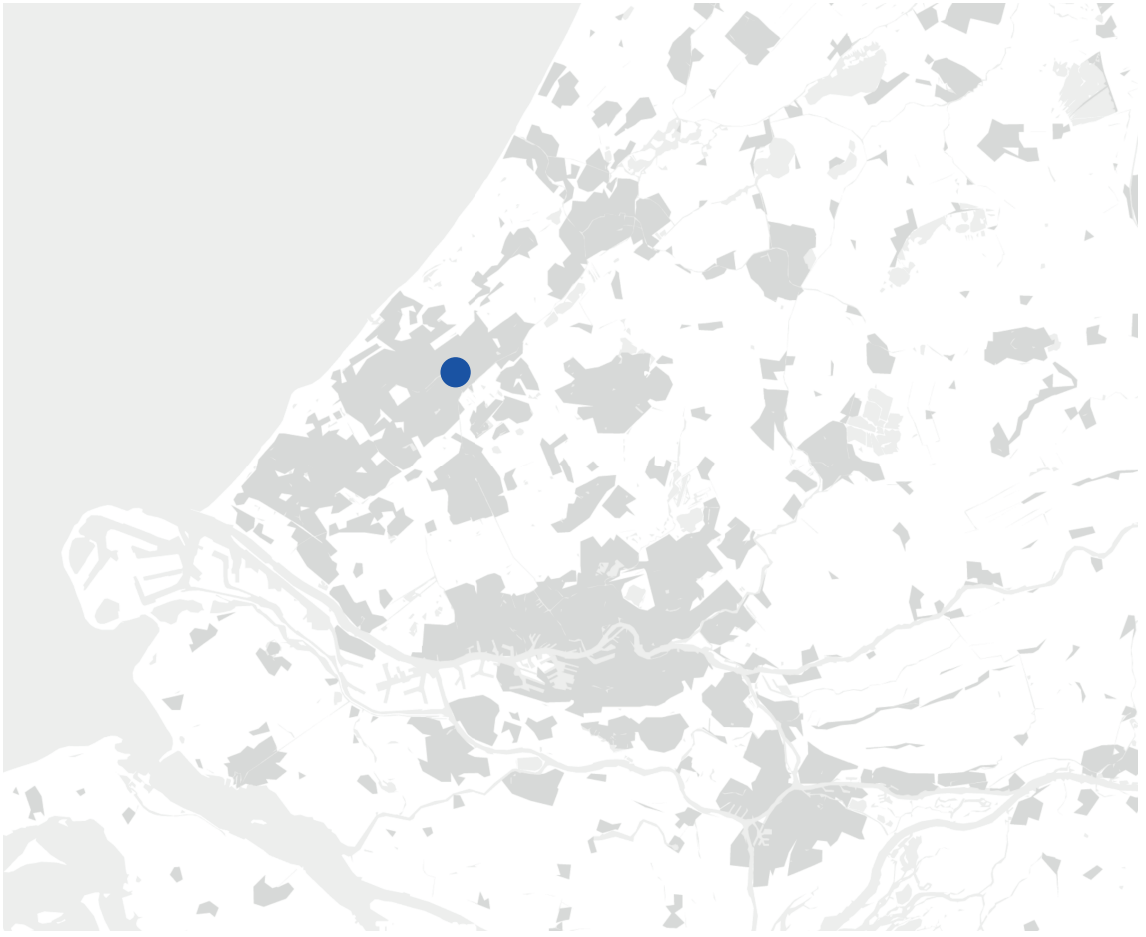
*10.170 * 8 to 12 + 14.400 * 4 = 138.960 to 179.640 m^3*

meaning that the total volume of the music venue will be roughly between **140.000 and 180.000 m^3**.

*(to compare: Amare measures 125 * 70 meters and is 38 meters high, meaning it has a volume of about 332.500 m^3.)*

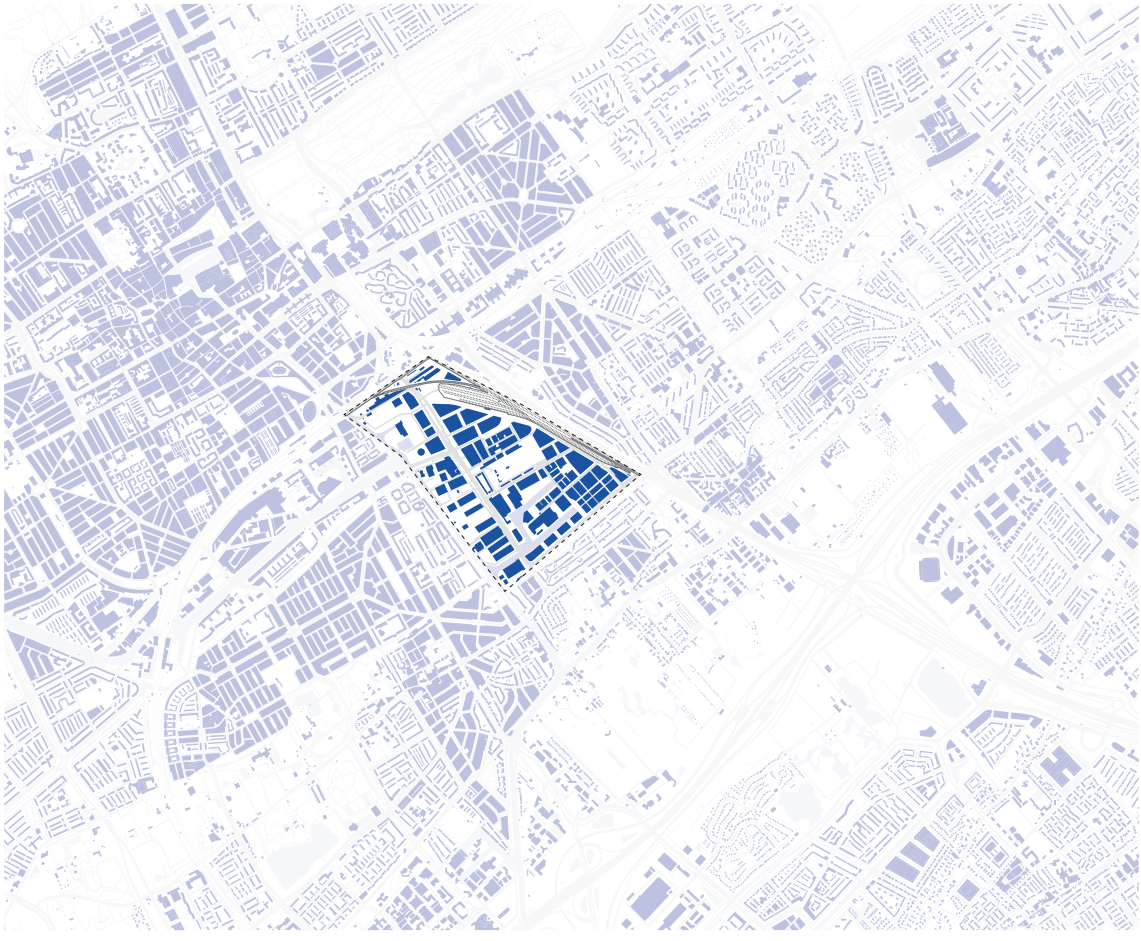
5. LOCATION

THE BINCKHORST



Scale
1:500.000

5.01.
Location of the Binckhorst in comparison to the southern part of the Randstad.



Scale
1:50.000

N

5.02.
Location of the Binckhorst in The Hague.





Scale
1:20.000

N

5.03. (left page)
Aerial photograph of the Binckhorst.

5.04. (right page)
Overview map of the Binckhorst.

5.05.
Concrete factory located in the Binckhorst. The cranes with their verticality act as a landmark.




HAC



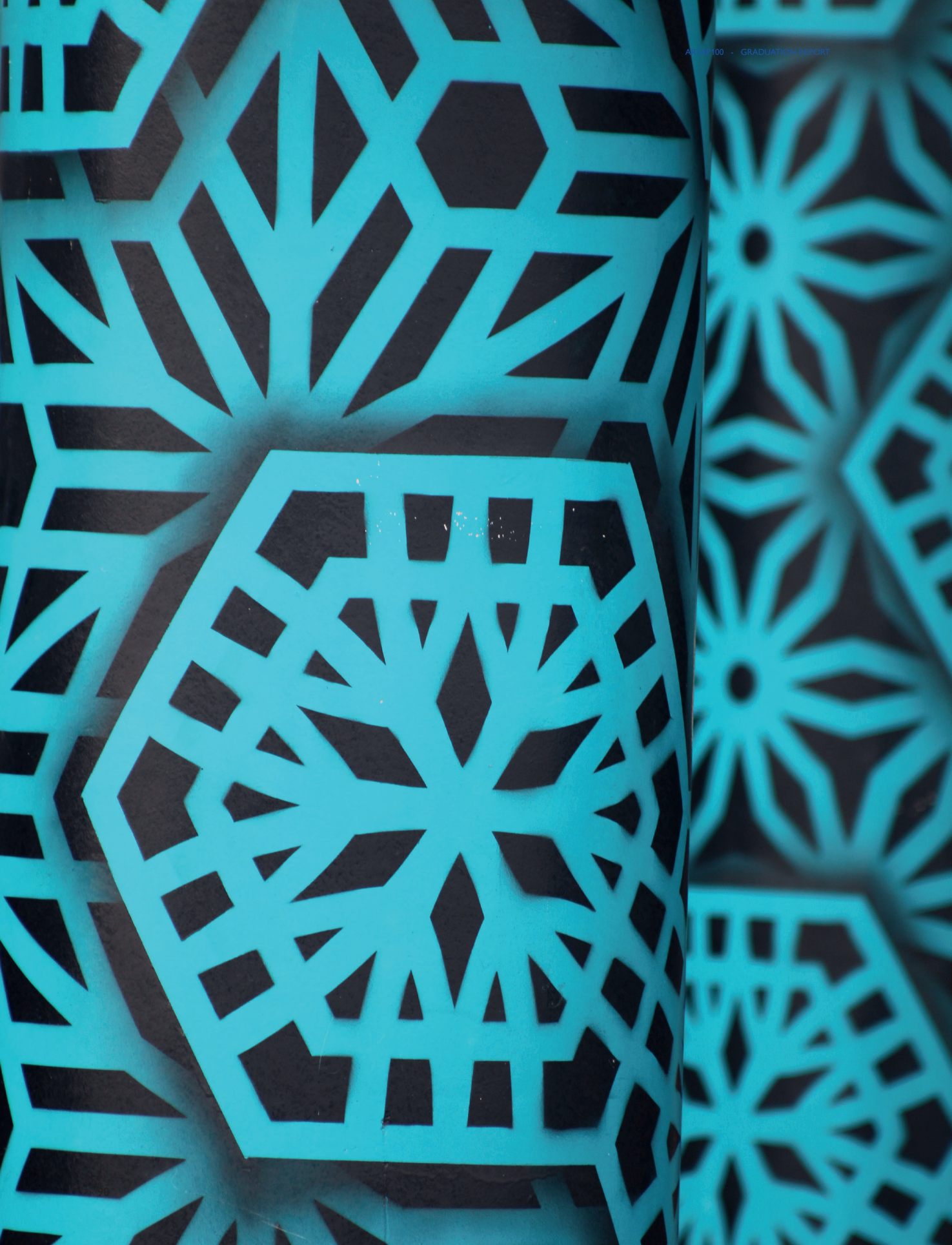


5.06.
Close-up of the waste facility building with a characteristic structure and colourful detail.

5.07.
Construction works dominate the current atmosphere of the Binckhorst.





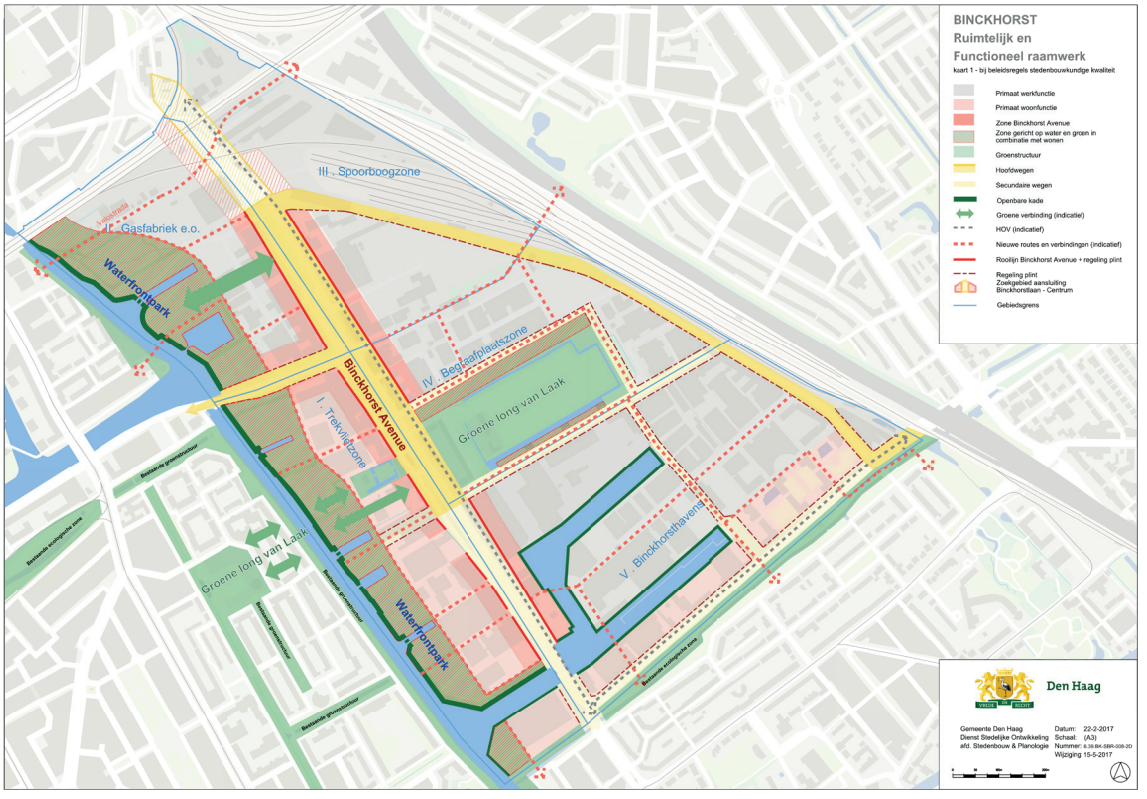




5.08. (left page)
Colourful graffiti can be found all around the site.

5.09. (right page)
Urban decay: close-up of a poorly maintained (however still operatable) crane.

SITE EXPLORATION



THE BINCKHORST PLAN (MUNICIPALITY)

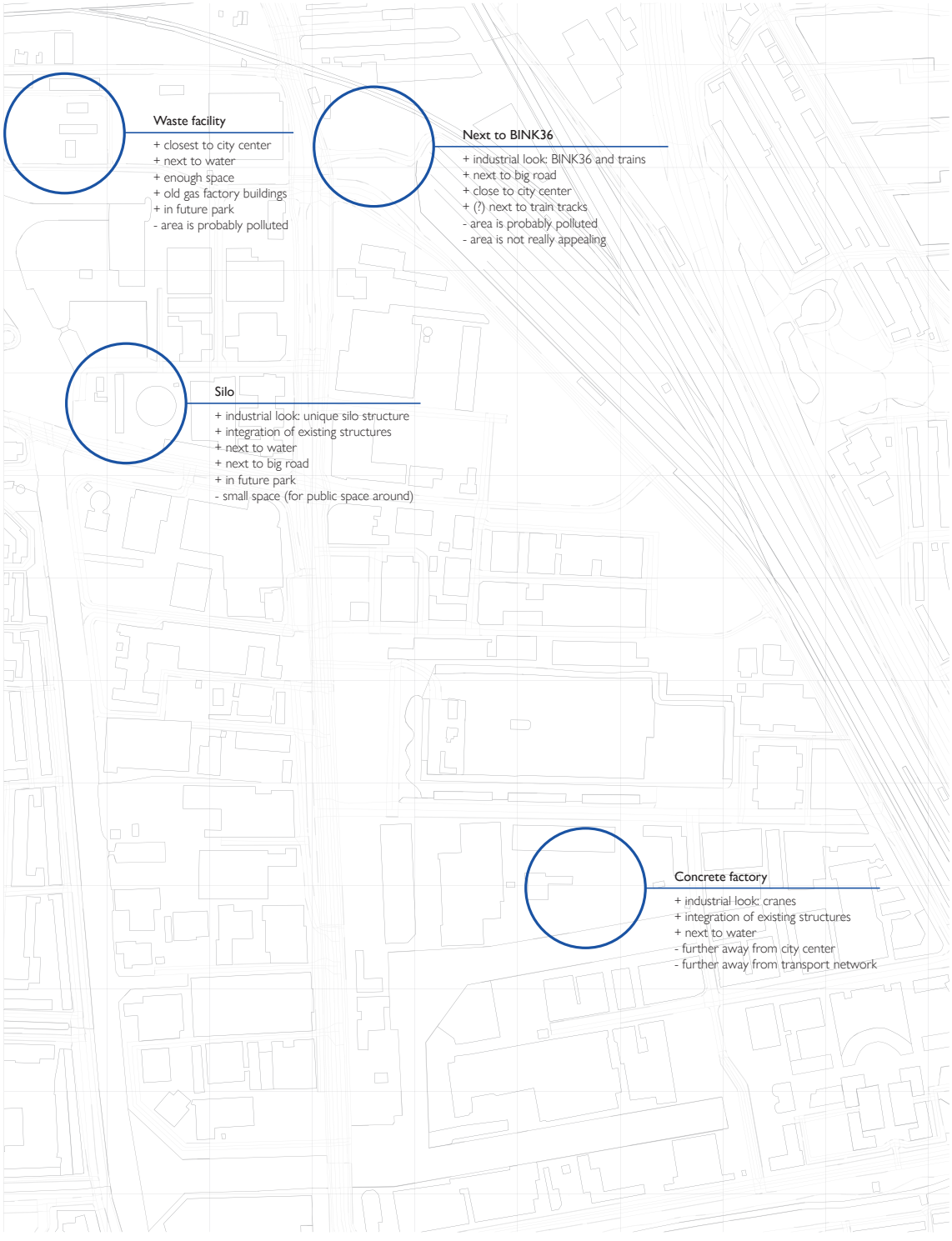
Above, the global plan for the Binckhorst by the municipality is shown. Their main goal is to add a lot of dwellings (in highrises along the "Binckhorst Avenue") and to create a continuous "Waterfrontpark" along the Trekvliet.

POSSIBLE LOCATIONS

On the right page, four potential locations have been identified as possible site for the music venue. For each location, advantages and disadvantages have been written down.

5.10. (top)
The Binckhorst "Ruimtelijk en Functioneel Raamwerk" by the municipality of The Hague.

5.11. (right page)
Map of the Binckhorst with possible sites.


Waste facility
+ closest to city center
+ next to water
+ enough space
+ old gas factory buildings
+ in future park
- area is probably polluted
Next to BINK36
+ industrial look: BINK36 and trains
+ next to big road
+ close to city center
+ (?) next to train tracks
- area is probably polluted
- area is not really appealing
Silo
+ industrial look: unique silo structure
+ integration of existing structures
+ next to water
+ next to big road
+ in future park
- small space (for public space around)
Concrete factory
+ industrial look: cranes
+ integration of existing structures
+ next to water
- further away from city center
- further away from transport network



Scale
1:5.000 (85%)

N

SITE QUALITIES

The location is very close to the city center (and the CID with the two large train stations: The Hague Central Station and The Hague Hollands Spoor). Next to that will this site have a high quality public space (a park) within a dense urban environment with highrise buildings. The park is located next to water and some of the history of the site is still present especially the monuments from the former gas factory.

IDEAS

The idea is that the area will have a Parc de la Villette-like feeling. The music venue will stand out as an icon but it will blend in with the park. To create that atmosphere, the border between the inside and the outside of the venue will be blurred, the program is situated both within the venue and around the venue in the park. Next to that, perhaps the large waste facility building can be used as an exhibition hall and it can host large events such as big (pop) concerts. Lastly, a physical connection can and should be made between the park and the Central Innovation District (mainly connecting the music venue with the nearby The Hague Hollands Spoor train station).

5.12. (top)
Map of the former gas factory terrain, north-western part of the Binckhorst. By group 4 (Alara, Ghassan, Dimitri & Stephan).

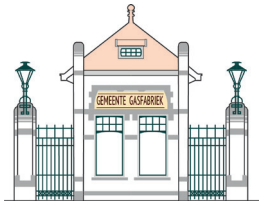
5.13. (right page, top)
Collage impression of the Waterfrontpark by OKRA.

5.14. (right page, middle)
Axonometric impression of the park by OKRA.

5.15. (right page, bottom)
Drawings of facades found in the gas factory terrain, showing aesthetics and characteristic shapes of the buildings. Drawn by group 4 (Alara, Ghassan, Dimitri & Stephan).



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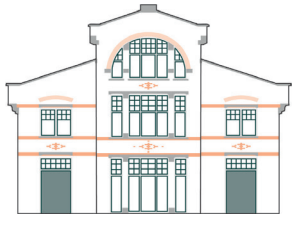
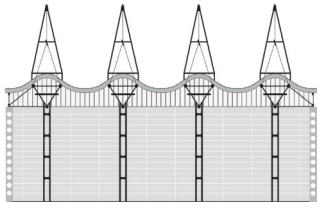
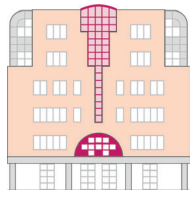


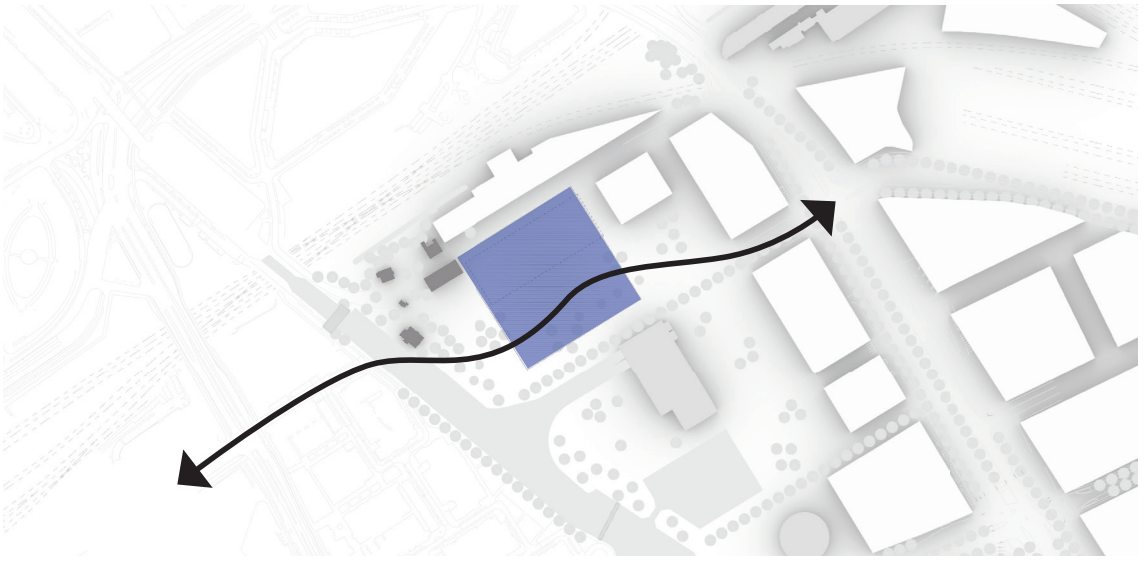




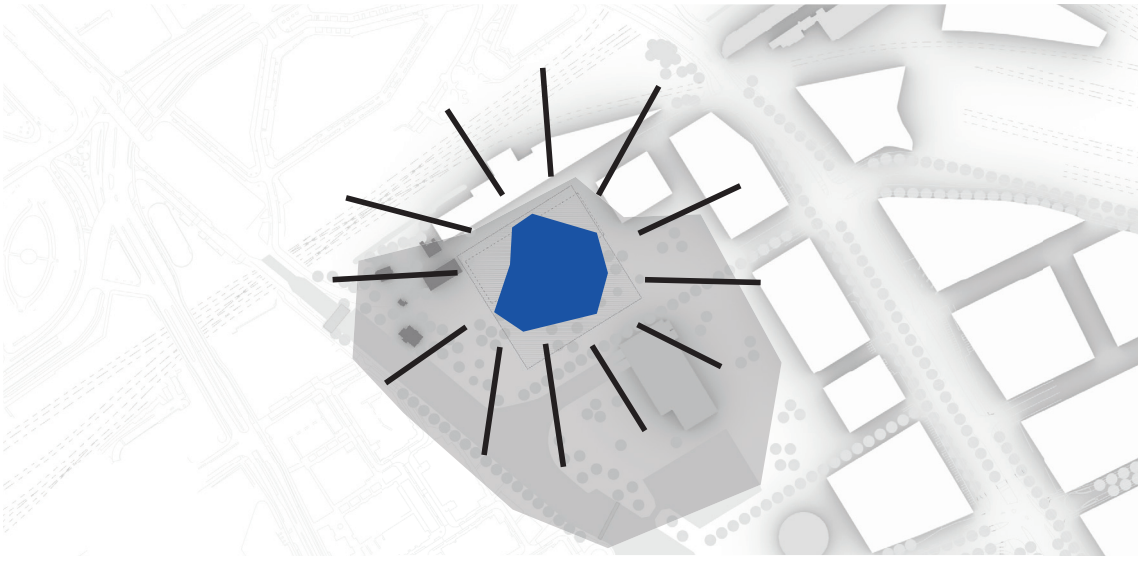
SITE ANALYSIS

5.16. (top)
Axis from The Hague HS to the Binckhorst.

5.17. (bottom)
Music venue as iconic building within the park.



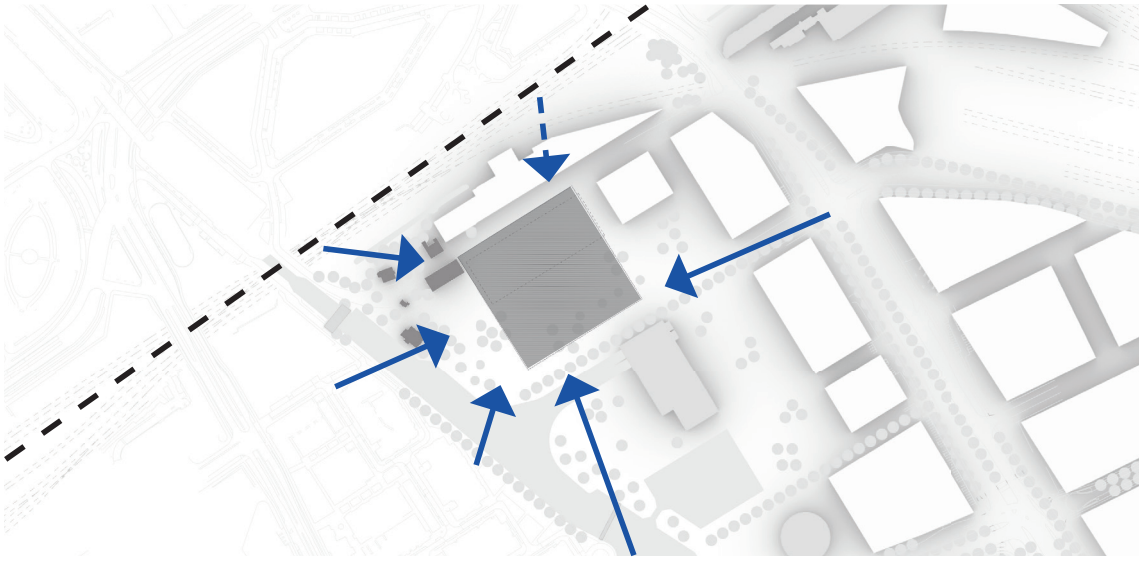
AXIS ALONG OR THROUGH THE BUILDING
Open plinth to blend interior with exterior and to stimulate interaction.



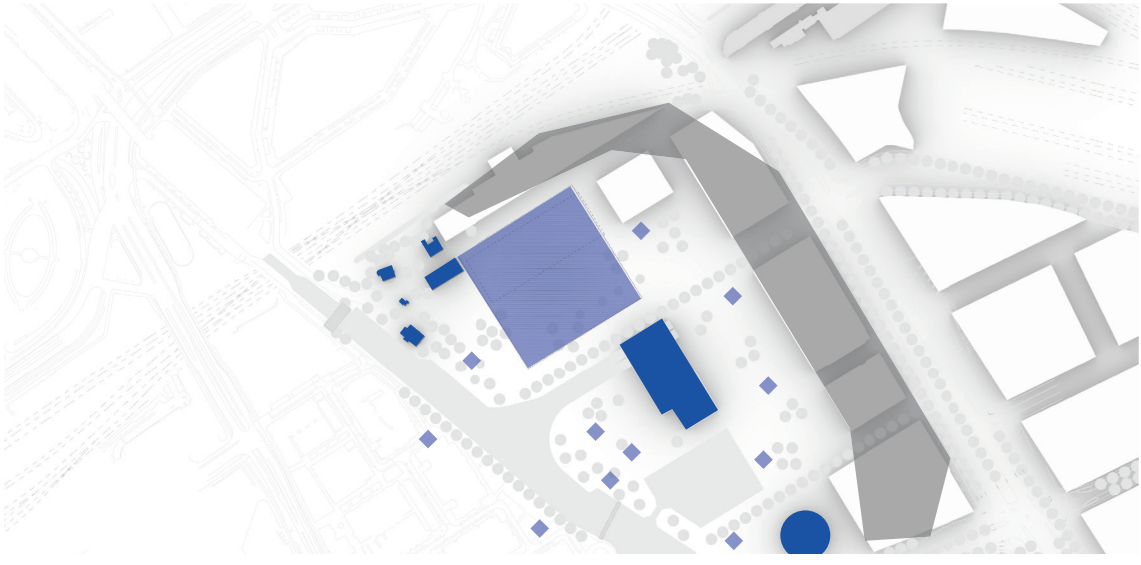
ICON IN A PARK
Because of this all around visibility, the venue will have no bacide, as an icon sitting in the middle of the park.

5.18. (top)
Iconic appearance, meaning a high visibility.

5.19. (bottom)
"Culture Park" with a lot of activity.



HIGH VISIBILITY FROM NEARBY CONTEXT
The building will be visible from all around (including from the train).



"PARC DE LA VILLETTE" - LIKE ATMOSPHERE
A "culture park" will be located around the building to create an artistic hotspot.

N

Scale
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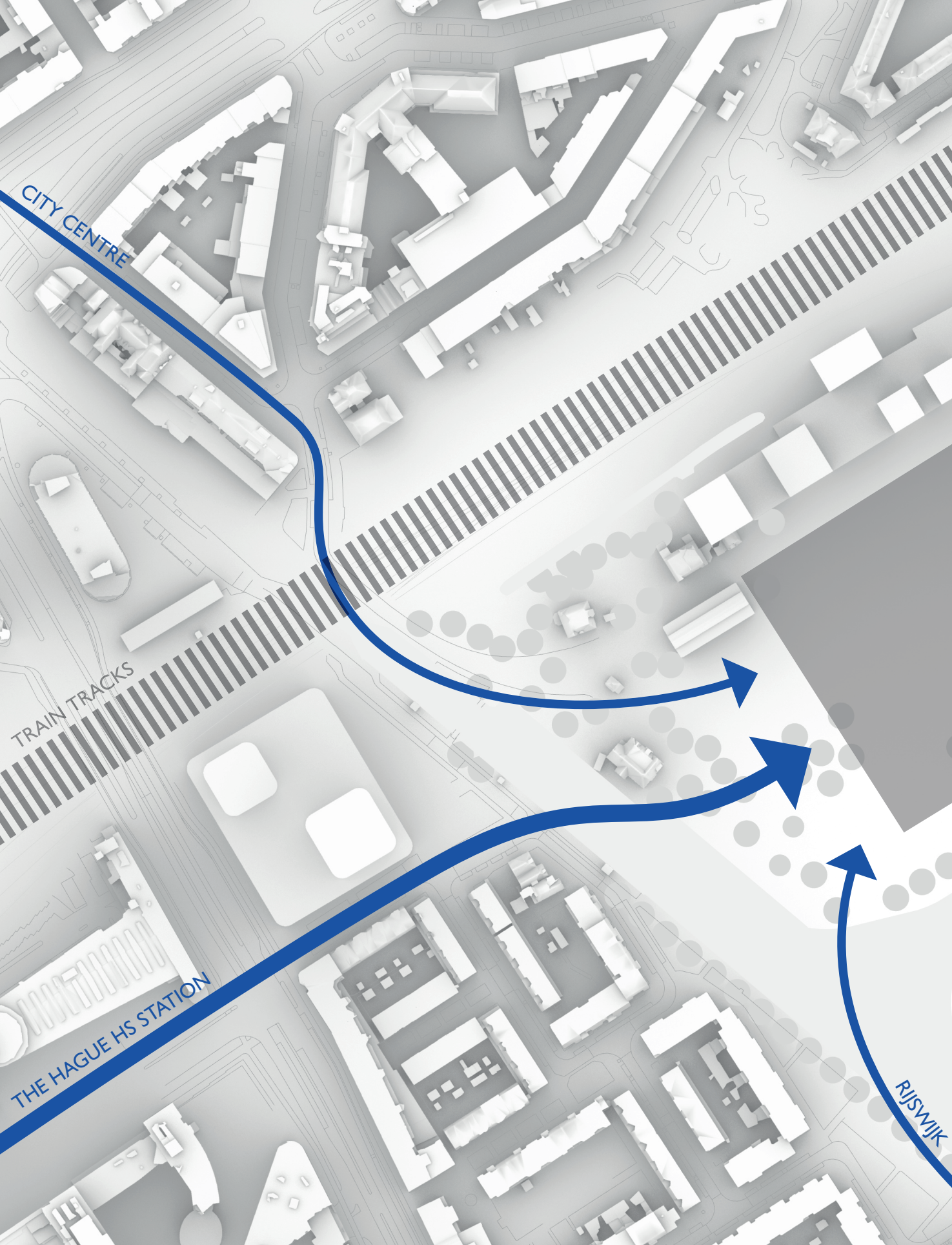
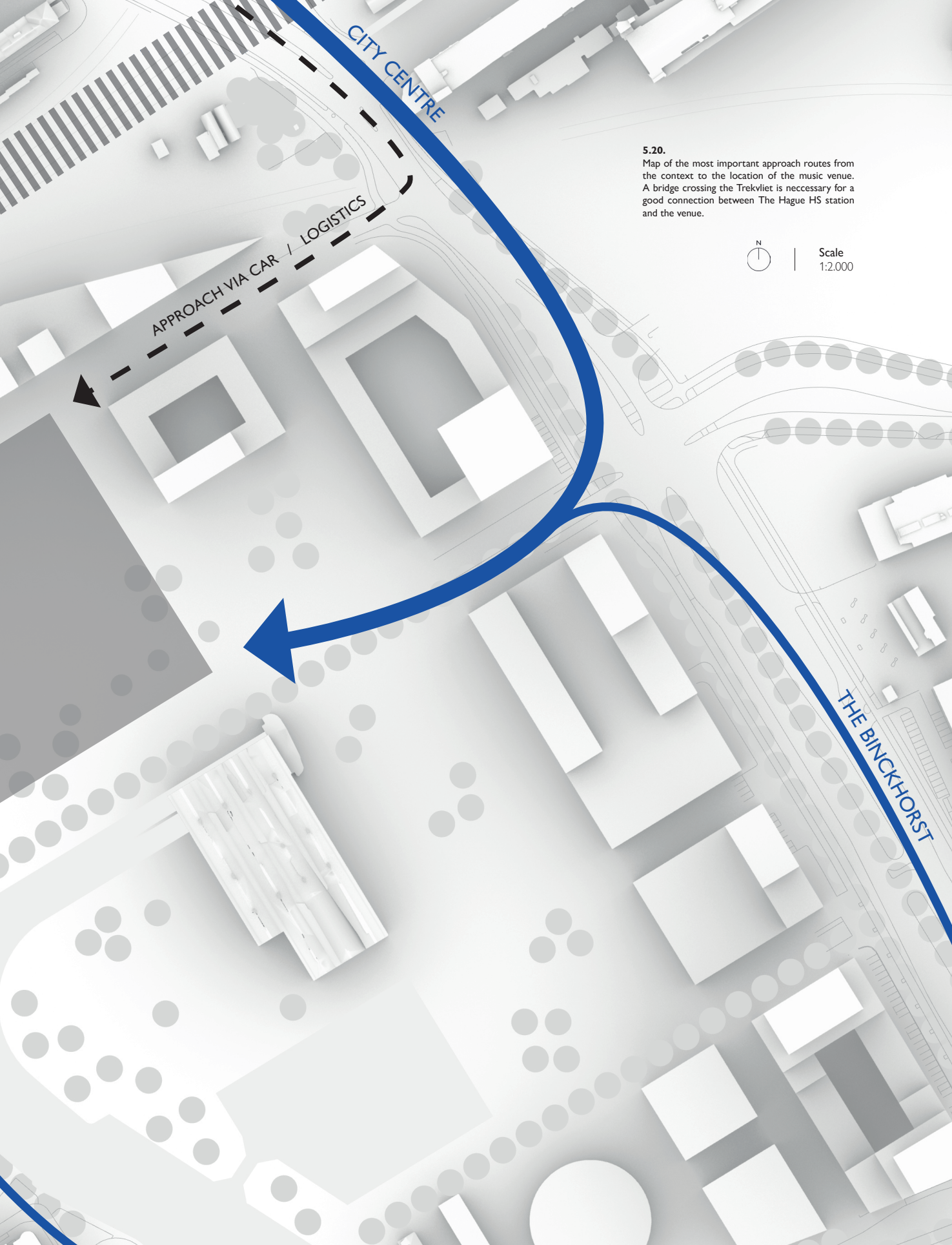
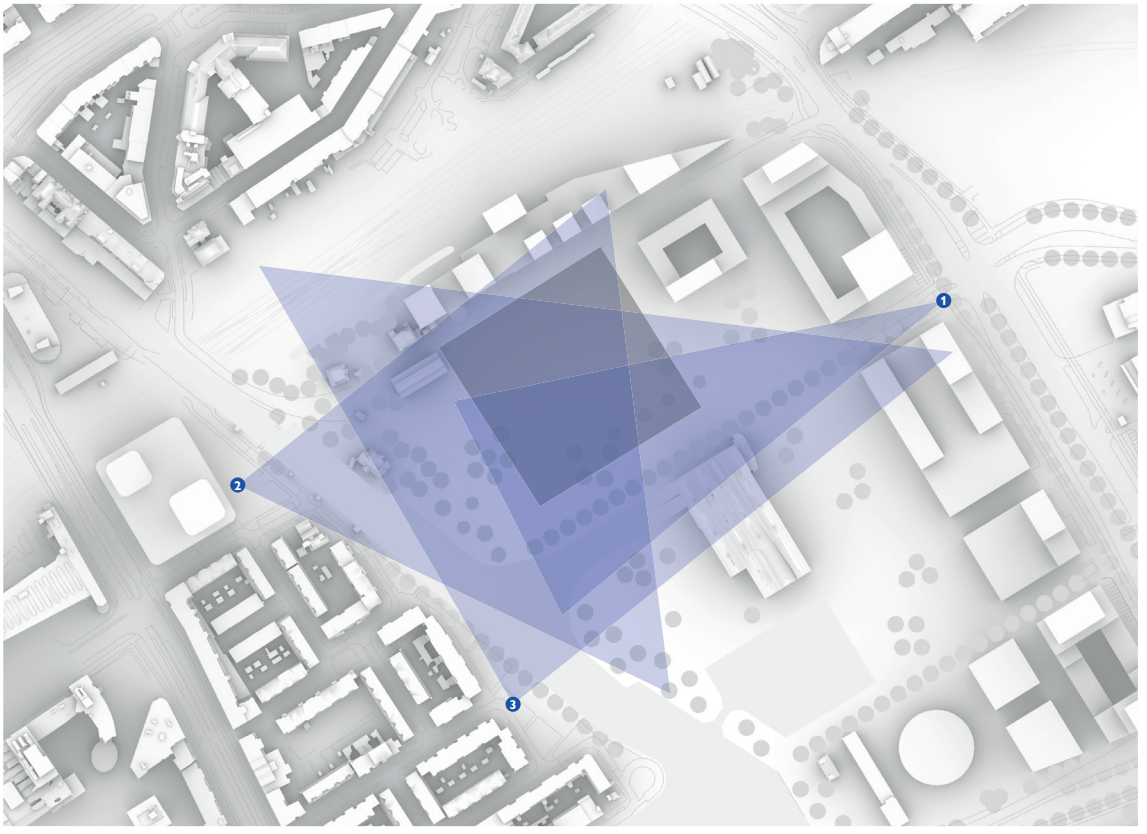

CITY CENTRE
TRAIN TRACKS
THE HAGUE HS STATION
RIJSWIJK



5.20.
Map of the most important approach routes from the context to the location of the music venue. A bridge crossing the Trekvliet is neccessary for a good connection between The Hague HS station and the venue.



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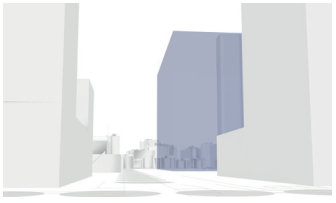


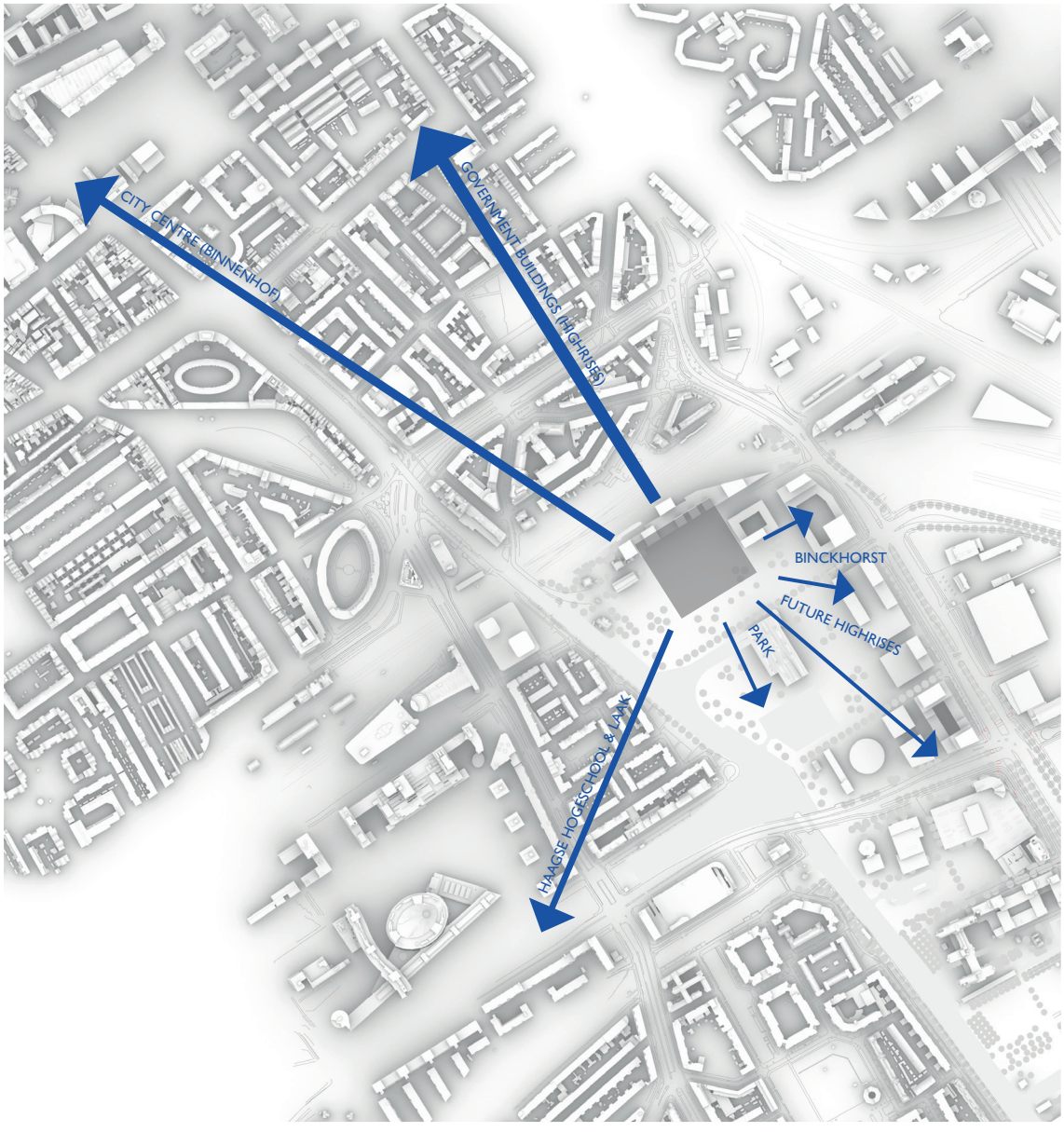




1. FROM THE BINCKHORSTLAAN
Main entrance to the park from the Binckhorst, corner of the building + the side facing the park will be visible.

2. FROM THE GRACE
View when approaching the building from The Hague HS station, highly visible, foreground with smaller historical buildings from the former gas factory.

3. FROM THE OTHER SIDE OF THE WATER
Standing in the Waterfront park (on the other side of the Trekvliet), the building will be fully visible.



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Scale
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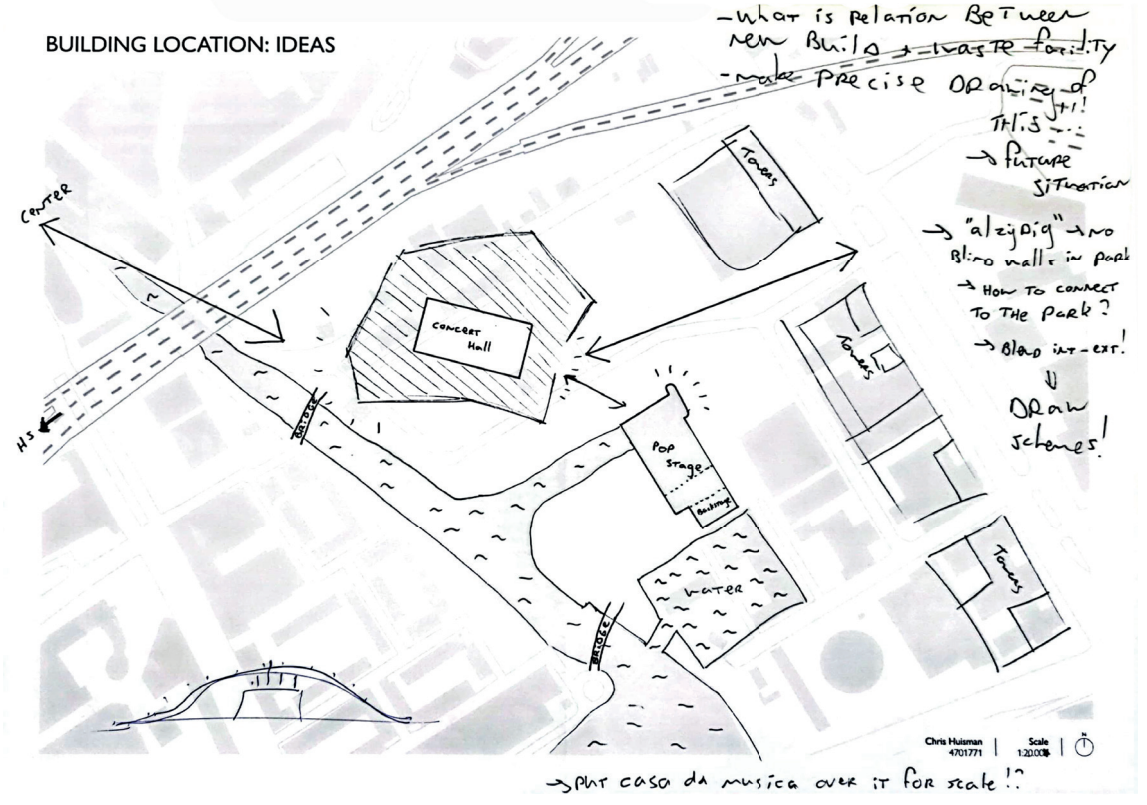
5.21. (left page, top)
Views from the context towards the location.

5.22. (left page, left)
View from the Binckhorstlaan.

5.23. (left page, middle)
View from the other side of the Trekvliet.

5.24. (left page, right)
View from the other side of the Trekvliet.

D.31.
View lines from the music venue towards the bigger context.



5.24.
Early sketch of possibilities and ideas about the design location.



Scale
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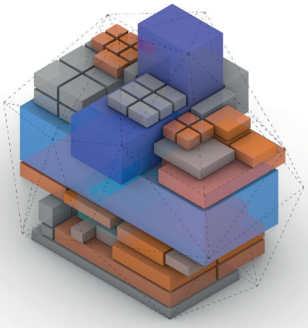
5.25.
Ground level program placement to test the program in relation to the direct context.

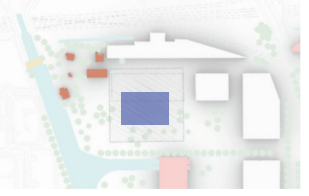
PROGRAM PLACEMENT RELATED TO SITE

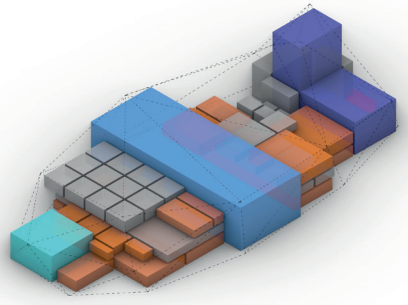


MAX. HEIGHT - MIN. FOOTPRINT (STACKING)



L = 55 m.
B = 80 m.
H = 80 m.

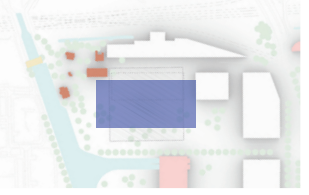




MIN. HEIGHT - MAX. FOOTPRINT (PARALLEL)



L = 170 m.
B = 80 m.
H = 35 m.

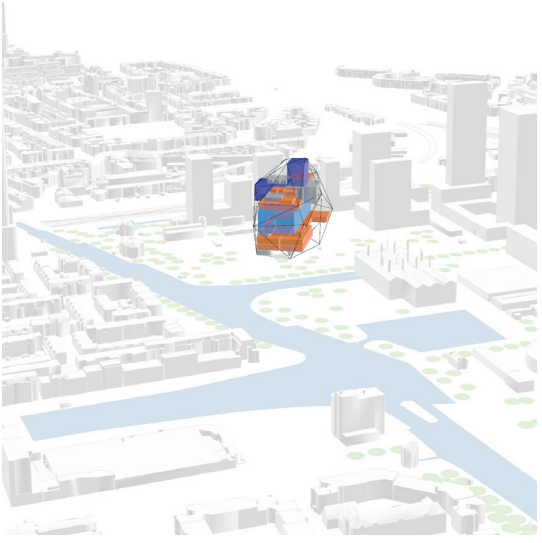


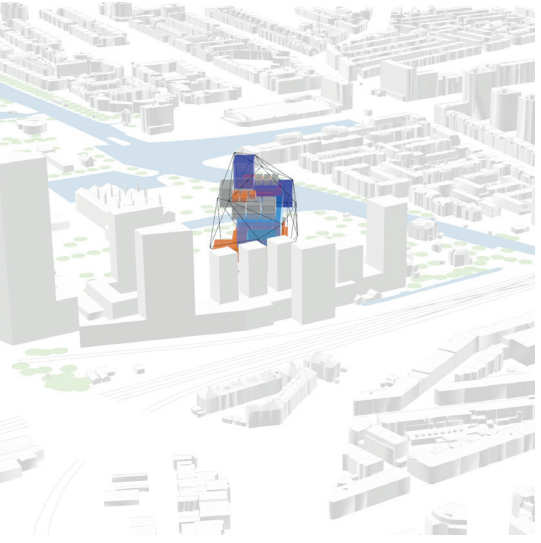
PROGRAM - MASSES: TWO EXTREME OPTIONS

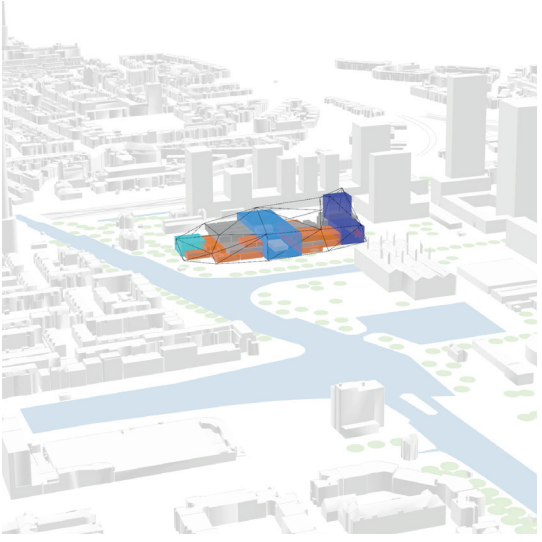
Stacking all the program on top of each other to create as much verticality as possible (top) or placing all the program next to each other (bottom).

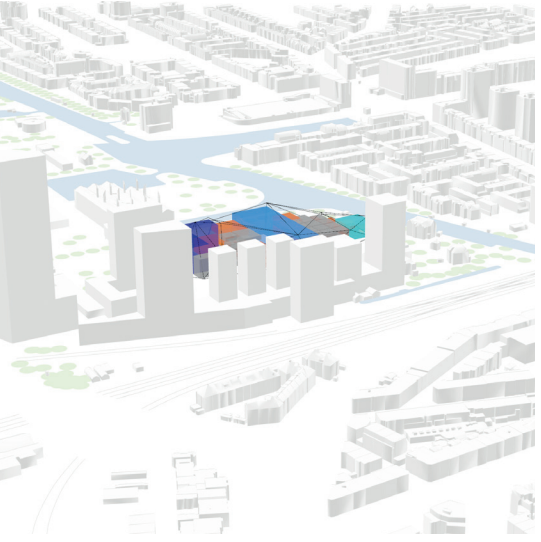
5.26.
First extreme variant: stacking for maximum height and minimum footprint.

5.27.
Second extreme variant: parallel placement for minimum height and maximum footprint.









MASSES IN CONTEXT

The stacked version (top) is clearly more visible than the parallel version (bottom). Next to that, the parallel version will take up a lot of space in the park.

5.28. (top, left)
Stacking, bird's eye view from Rijswijk.

5.29. (top, right)
Stacking, bird's eye view from Central Station.

5.30. (bottom, left)
Parallel placing, bird's eye view from Rijswijk.

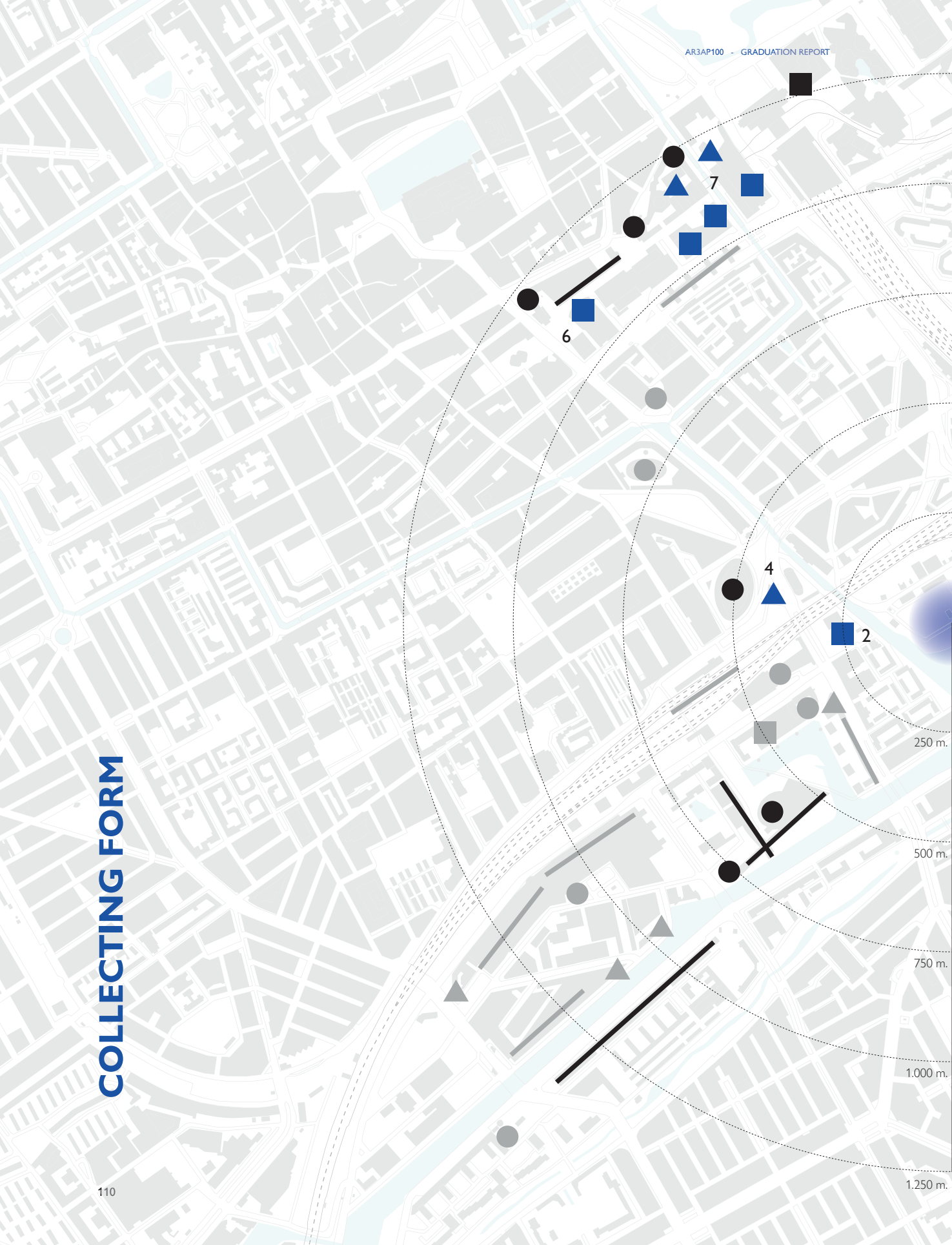
5.31. (bottom, right)
Parallel placing, bird's eye view from Central Station.

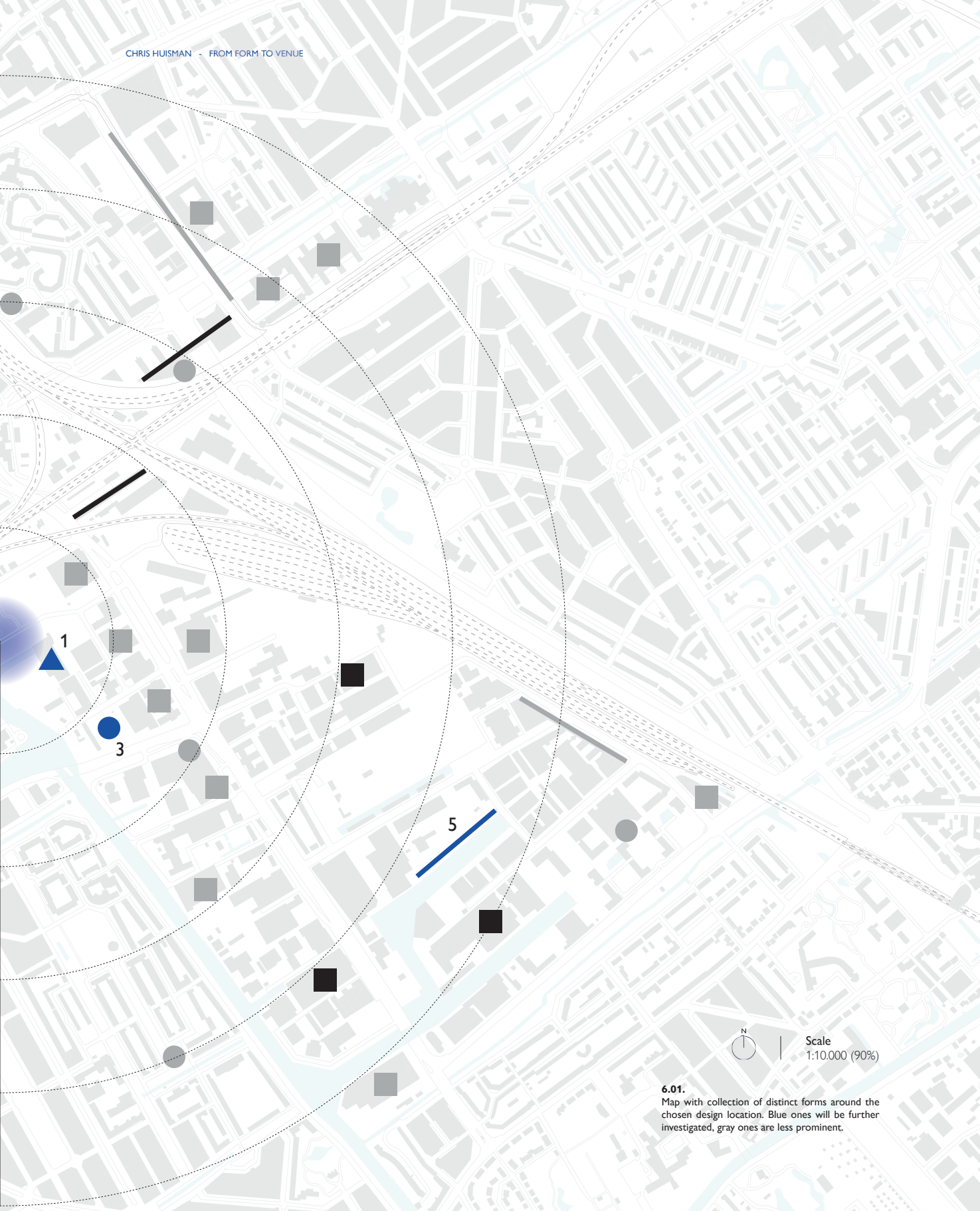
6. FORM

WHAT FORMS CAN BE FOUND ON **SITE**?

WHAT FORMS DO **MUSIC VENUES** HAVE?

COLLECTING FORM

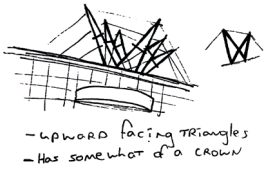
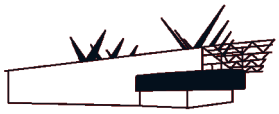
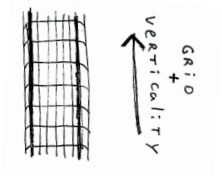
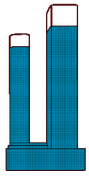
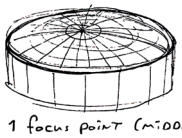
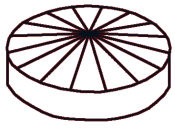
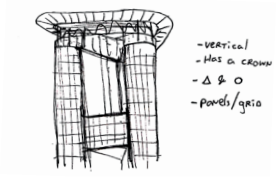
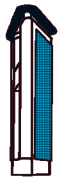
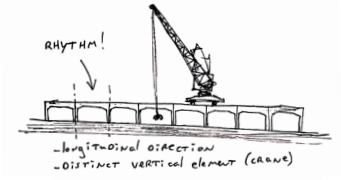
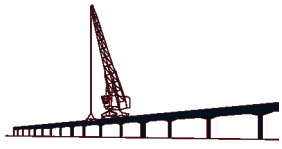
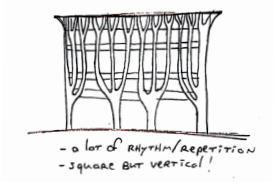
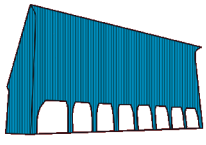
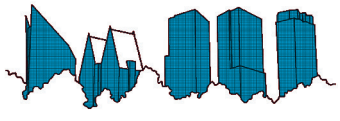




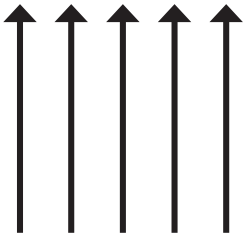
6.01.
Map with collection of distinct forms around the chosen design location. Blue ones will be further investigated, gray ones are less prominent.

No.	Name	Shape	Program / building description	Image
1	Waste distribution centre		Big open hall for transfering waste from garbage trucks onto boats. About 90 x 45 m. (4.000 m^2). Also called the "Cathedral".	
2	The Grace		Residential towers, offices and commercial functions. Towers will be 180 and 150 m. high, with rounded corners, sitting on a 7 storey plinth. A lot of emphasis on verticality with visible grid on facades.	
3	Silo of former gas factory		Large circular silo or "gasholder" (50 m. diameter) that can be expanded upwards to store gas. Potential monument.	
4	Het strijkijzer		Residential tower with a distinct triangular shape, again a lot of verticality and two of the three corners are rounded off.	
5	Concrete factory crane structure		Large concrete structure with rails for cranes. Very heavy weight and raw / industrial look. About 180 m. long with a clear rhythm of columns.	
6	Amare		Large complex for education and culture related to music, performing and dance / theatre play. Facade has a lot of rhythm and reminds you of a tunig fork, quite open plinth. The whole mass is about 125 x 70 x 38 m.	
7	Ensemble of ministry buildings (Castalia, Hoftoren, JuBi-building) and De Kroon	 	Collection of multiple towers with distinct shapes, defining the skyline of The Hague. Quite blocky complex with a couple of triangular roofs. Heights between 104 and 146 m., emphasis on verticality.	

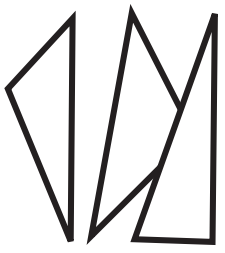
6.02. - 6.08. (images from top to bottom) & 6.09. (sketches, right page)
Analysis of collected forms in and around the design location.

Form analysis	Abstraction
	
	
	
	
	
	
	

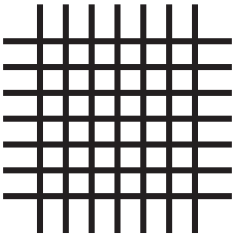
SITE:
FORM PRINCIPLES



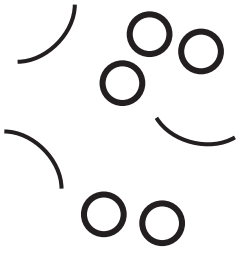
Emphasis on verticality



Triangular shapes (pointing upwards)



A lot of rhythm / repetition (strong grid, facades)



Round shapes used as details

KEY DESIGN ASPECTS

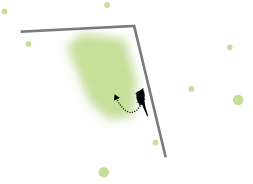
Based on the research on forms in the Binckhorst and in The Hague, the four principles shown on the left page can be concluded as leading form principles derived from the site. The first and most important aspect is the emphasis on verticality. Vertical lines are currently already present in The Hague but will be even more when the planned highrise building in The Binckhorst are realised. Next to that do some buildings have distinct triangular shapes, mainly pointing upwards and therefore once again emphasizing verticality. Strong repeating patterns and clear grid structures are also a remarkable form-feature present in the direct context of the design location. This principle goes well with the topic of music as it expresses rhythm. Lastly, some structures are circular features but they are often not as prominent as the triangular shapes.

6.10. (left page)
Icons of form principles, derived from site analysis.

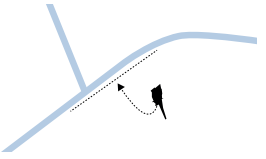
CASE STUDIES: CONCLUSIONS



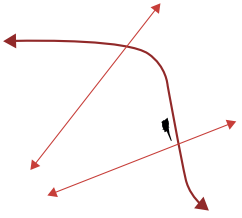
URBAN CONTEXT



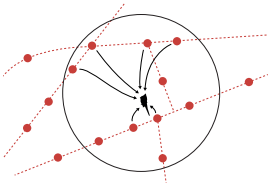
GREEN



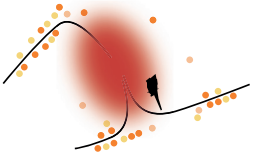
WATER



ROAD NETWORK



PUBLIC TRANSPORT

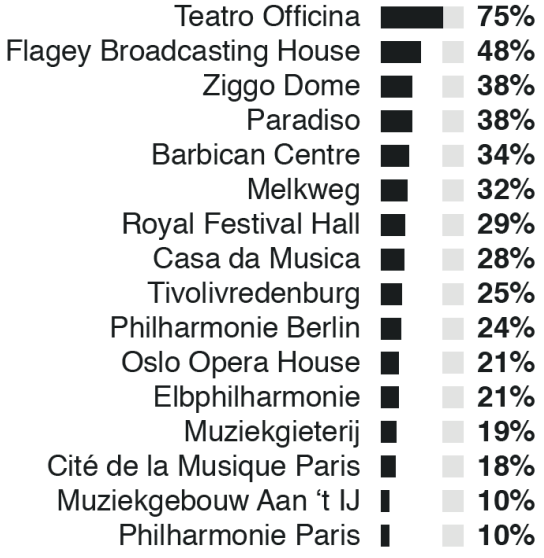


AMENITIES

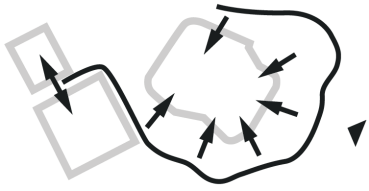
CITY

Above, some concluding schemes of the city analysis of the Philharmonie de Paris by Jean Nouvel are shown. As was the case with most case study buildings that were analysed, the music venues are usually located in a dense urban context. Most of them are directly connected to some public green and water. All venues have a very good connection to both the road network as the public transport network and most venues have supporting amenities located within their direct surroundings to increase liveliness.

6.11.
Concluding schemes for different topics related to the theme of "City", as an analysis on the Philharmonie de Paris by Jean Nouvel.



PERCENTAGE OF CONCERT HALL VOLUME
RELATED TO TOTAL VENUE VOLUME



ACCESSIBILITY CONCERT HALLS



AUDIENCE SEATING SLOPES

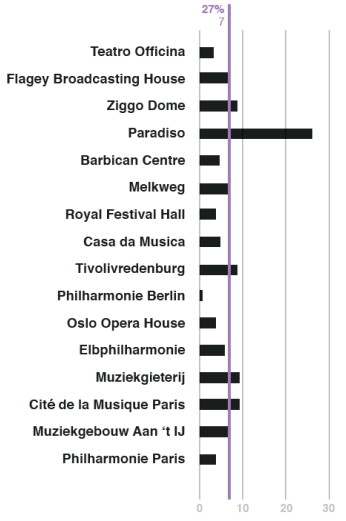
CONNECTION

Above, a table of the percentages of concert hall volumes in related to the total volume of each music venue is shown. Next to that, specifically for the Philharmonie de Paris, the indoor routing or accessibility of the concert halls is shown. As is the case with most music venues that have been analysed, the concert halls have multiple entrances for the audience to get to their seats. The slope degree of the seating for the audience for the Philharmonie de Paris is also shown. In general, these slopes are usually between 10 and 30 degrees.

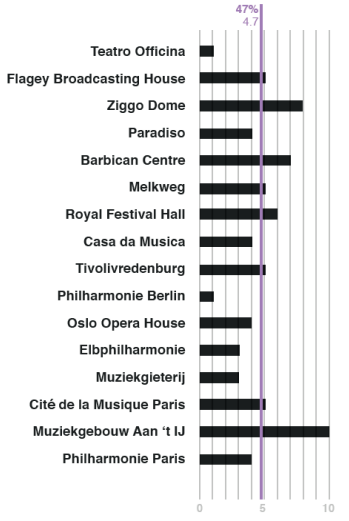
6.12.
Concluding schemes for different topics related to the theme of "Connection", concert hall volumes of all analysed case studies and accessibility and seating slopes of the Philharmonie de Paris by Jean Nouvel.



AMOUNT OF EVENTS PER YEAR



AMOUNT OF GENRES



AMOUNT OF FUNCTIONS

CULTURE

Above, three graphs are shown with, for each case study, the amount of events per year, the amount of genres that perform in the music venue and the total amount of functions the venue hosts. The percentage line gives an indication of the average for each topic, always in relation to the "top performer".

6.13.
Concluding schemes for different topics related to the theme of "City", as an analysis on the Philharmonie de Paris by Jean Nouvel.

CASE STUDIES TAKEAWAYS

CITY:

Open public space around the building adds to the monumental character.

Have a good connection to high quality green space.

Make sure logistics routes do not interfere with the public too much.

Add extra amenities to increase liveliness.

Public space in front of the venue is important for crowd control and creating an icon.

Being next to water can add to the monumental character of the building.

Make sure the location is very well connected to the public transport network.

CONNECTION:

In general, about 20-40% of the total volume is performance hall.

Within the building, the public can enter a concert hall from multiple ways (sometimes even all around).

Audience seating slopes are usually between 10 an 30 degrees.

CULTURE:

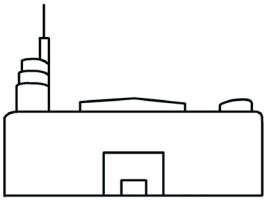
On average, about 600 events (concerts, etc.) take place in a venue every year.

Venues generally host 7 different music genres, pop venues are more diverse, classical music venues less.

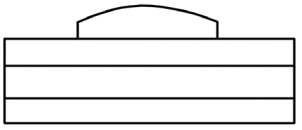
More diversity in functions means the building will be used more?

CASE STUDIES: FORMS

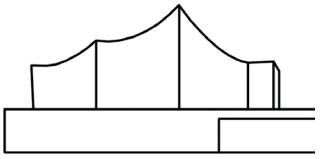
MAINLY ORCHESTRAL / SYMPHONIC MUSIC



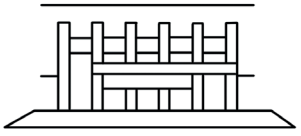
Flagey Broadcasting House
- Rectangular, rounded corners
- Layers and vertical element



Royal Festival Hall
- Symmetrical, rectangular box
- Horizontality



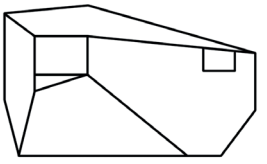
Berliner Philharmonie
- Clear base / plinth
- Pronounced shape roof follows movement of conductor?



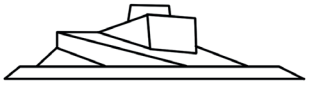
Barbican Centre
- Rectangular shapes, brutalist
- Verticality + horizontality



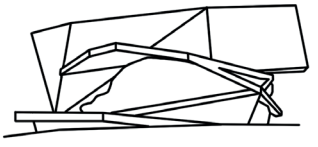
Royal Festival Hall
- Glass box with big roof
- Bimhuis as seperate box, almost floating



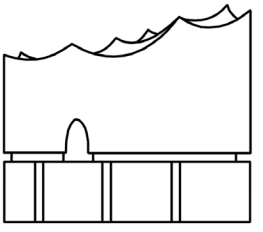
Casa da Música
- Sculpture like, strong edges
- Windows are details / eyes



Oslo Opera House
- Triangular, as ice floes
- Concert hall as contrashape in the landscape

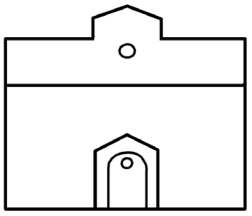


Philharmonie de Paris
- Iconic irregular shape
- Reacting to the surroundings while creating own identity

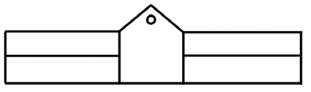


Elbphilharmonie
- Huge glass mass on warehouse
- Roof as hommage to Berliner Philharmonie

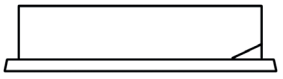
MAINLY AMPLIFIED MUSIC



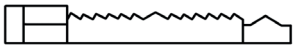
Paradiso
- Rectangular shape with some vertical elements
- Some round detailing



Melkweg
- Long, horizontal mass
- Some round detailing

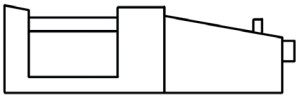


Ziggo Dome
- Large anonymous box
- Concrete plinth + corner detail

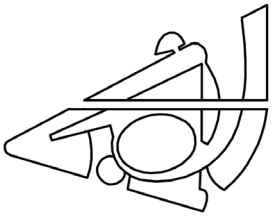


Muziekgieterij
- Horizontal shape, defined mass on both ends
- Triangles as roof (factory)

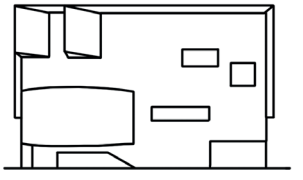
HYBRIDS



Teatro Oficina
- Long horizontal mass
- Improvised / collaged elements



Cité de la Musique
- Composition of round shapes
- Strong directions vs. wandering around



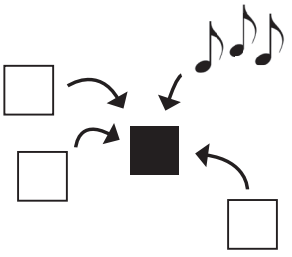
Tivoli Vredenburg
- Big box with individual blocks
- Wrapped by large roof

6.14.
Icons for each one of the sixteen case study building that have been analysed, showing and describing distinct forms in their appearance.

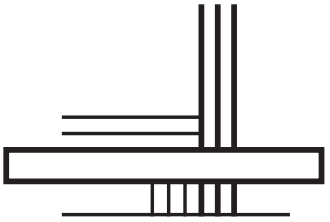
CASE STUDIES: FORM PRINCIPLES



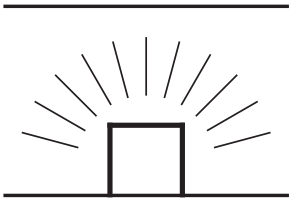
Concert halls are more sculptural and iconic



Inspiration from direct context and / or music



Strong movements / lines, both vertical / horizontal



Sometimes a grand entrance (big gesture)

KEY DESIGN ASPECTS

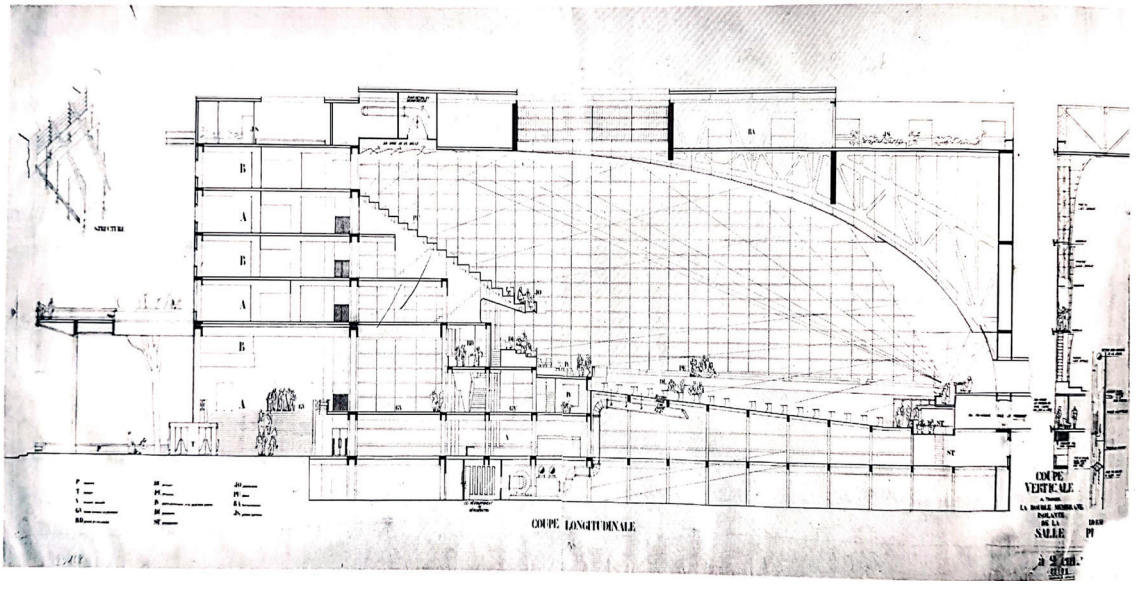
Based on the research on distinct forms in the case studies analysed during the first semester of the studio, the four principles shown on the left page can be concluded as leading form principles derived from these case study analyses. The first form principle is that modern concert halls for formal shows are usually quite iconic and sculptural in architecture, meaning strong lines, shapes and a clear composition of building mass. Most venues do get inspiration from their direct context and from music for the design choices that are made. In line with the first aspect do most of the concert halls from the case study analyses have strong lines in their appearance, both in a horizontal and a vertial direction. At last do some venues have a grand entrance that stands out from the building and is clearly visible. This way visitors will be automatically drawn inwards.

6.15. (left page)
Icons of form principles, derived from case studies analysis.

A CONCERT HALL
A THEATRE HALL
A JAZZ HALL

WHAT FORMS DO THESE MUSIC VENUE **TYPOLOGIES** HAVE?

CONCERT HALL: FORMS



CONCERT HALL

The main concert hall of the venue will be shaped according to the shoebox typology, which means that it will be a rectangular hall with proportions of about 2,5:1. There will be the possibility of having some seating behind the stage (as can be seen in the sketch on the right page) so that the intimate atmosphere of a vineyard typology music hall will be somewhat resembled. An important aspect is that the seating will be easily demountable, so that the concert hall can be used for different types of concerts (formal, seated, standing crowd, etc.). Because of both acoustics and visibility as audience, both the floor and the ceiling will be carefully sloped to create a form that is ideal for sound reflection and visibility on the stage.

6.16. (top)
Section with lines showing sound travel of the debating chamber at the Salle des Nations, competition project by Le Corbusier, 1927. Forsyth, M. (1985). *Buildings for Music.* p. 264.

6.17. (right page, top)
Shoebox typology examples shown in a lecture on acoustic design (M. Tenpierik, personal communication, November 25, 2021).

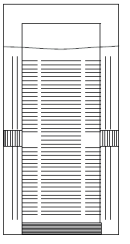
6.18. (right page, middle)
Section scheme showing the curvature of the audience seating and schemes how sound reflects on differently shaped ceilings.

6.19. (right page, bottom)
Sketch of a possible layout for the main concert hall.

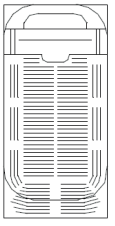
CLASSICAL
CONCERT HALLS

1.8 s < T < 2.2 s

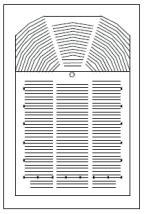
STILL AMONG THE
BEST CONCERT
HALLS WORLDWIDE



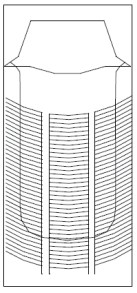
Wiener Musikverein



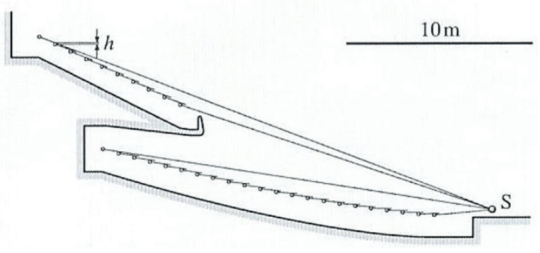
Neues Gewandhaus 1

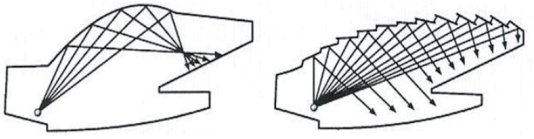


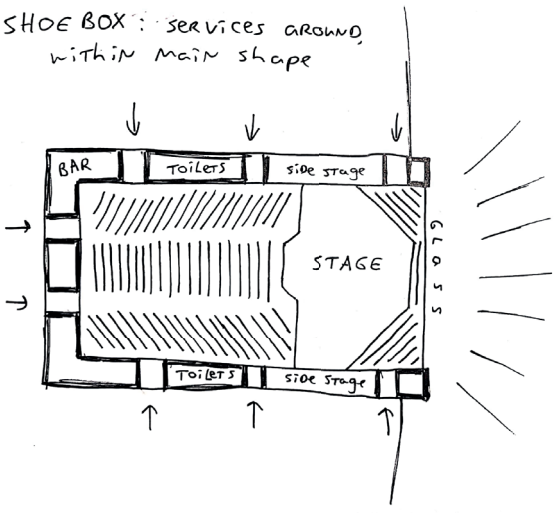
Concertgebouw



Symphony Music Hall







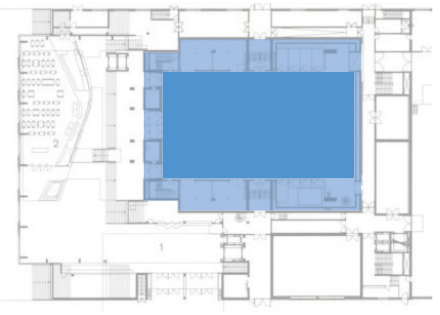




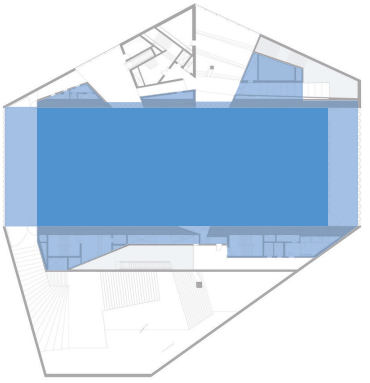
6.20.
Interior picture of one of the concert halls in Amare, The Hague.

FLOOR PLAN

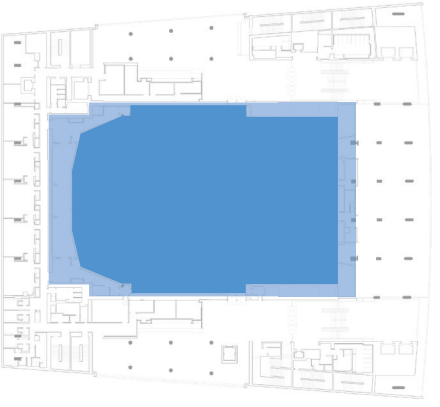
MUZIEKGEBOUW AAN 'T IJ, AMSTERDAM (3XN)



CASA DA MUSICA, PORTO (OMA)



ROYAL FESTIVAL HALL, LONDON (LESLIE MARTIN, ROBERT MATTHEW & PETER MORO)

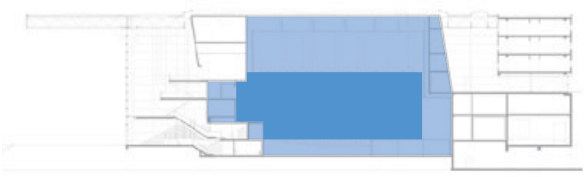


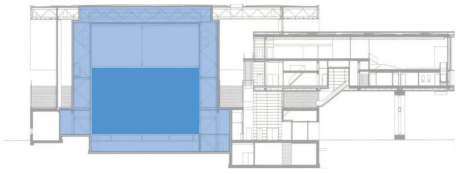
6.21.
Analysis of several concert hall forms, traced in plan and section.

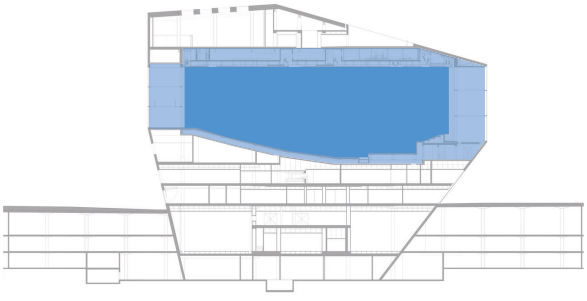
FORM EXAMPLES

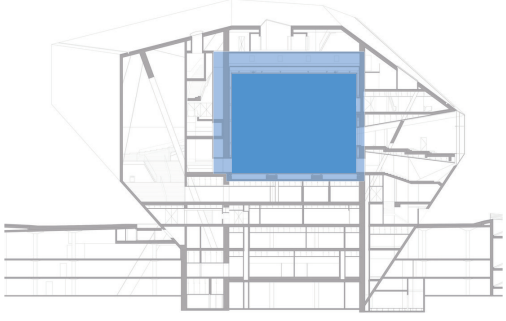
LONGITUDINAL SECTION

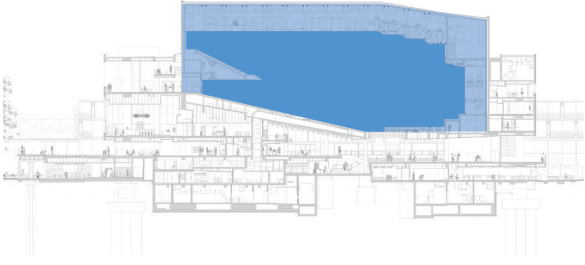
CROSS SECTION

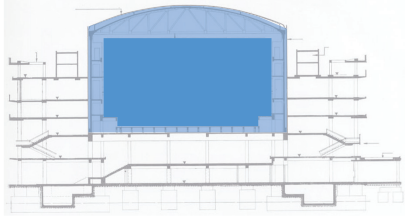






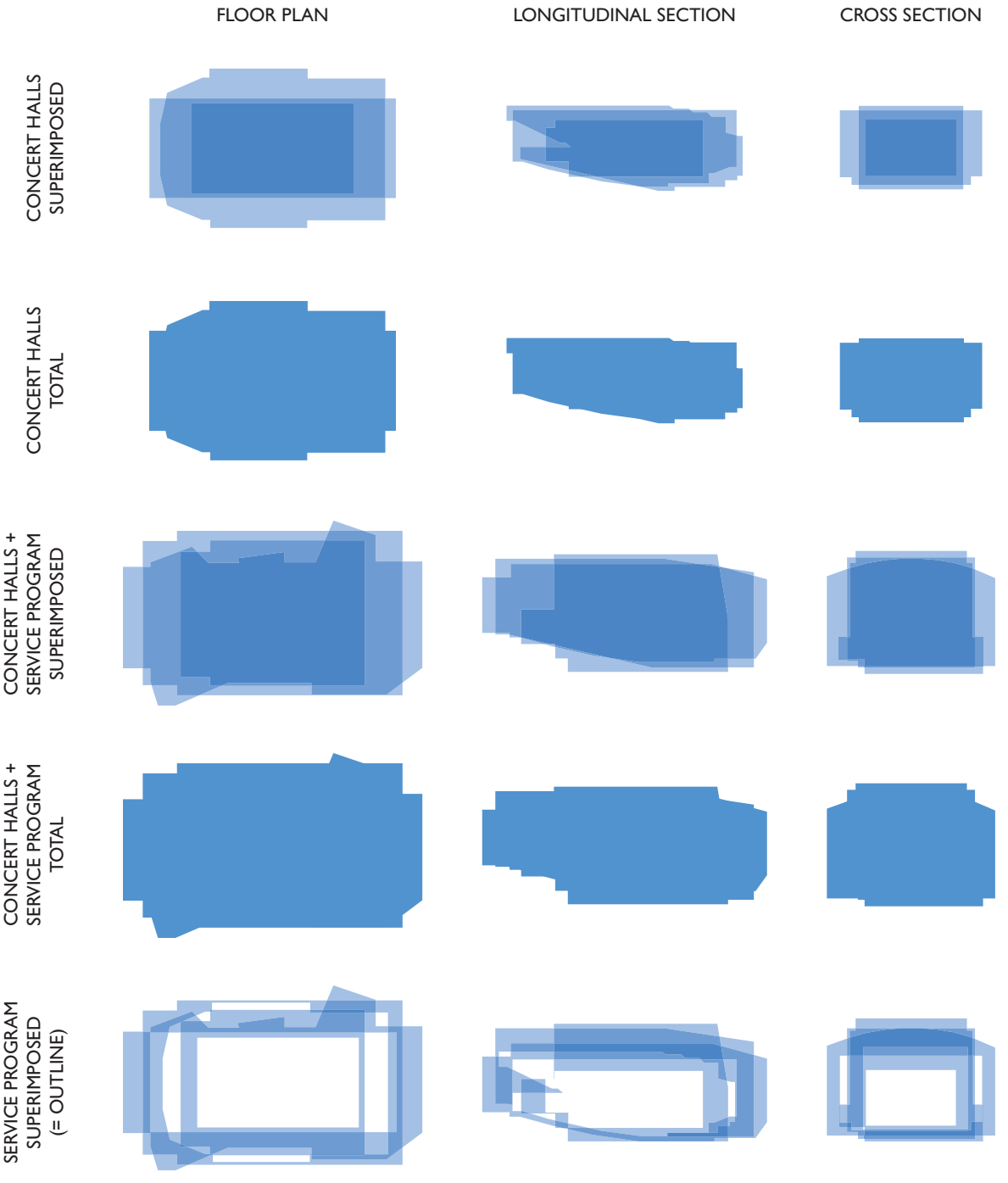






Services
Concert hall

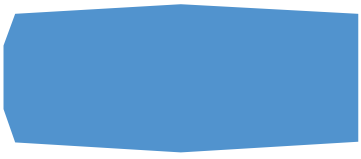
Scale
1:1.000 (70%)



ULTIMATE FORM

6.22.
Analysis of several concert hall forms, superimposed to find an ultimate form.

FLOOR PLAN



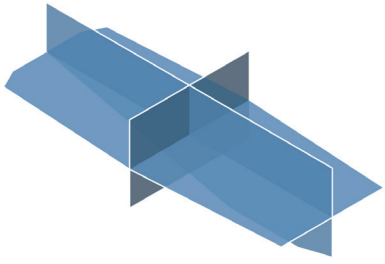
LONGITUDINAL SECTION



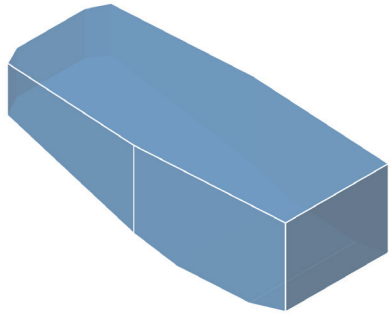
CROSS SECTION



COMBINING



FINAL FORM

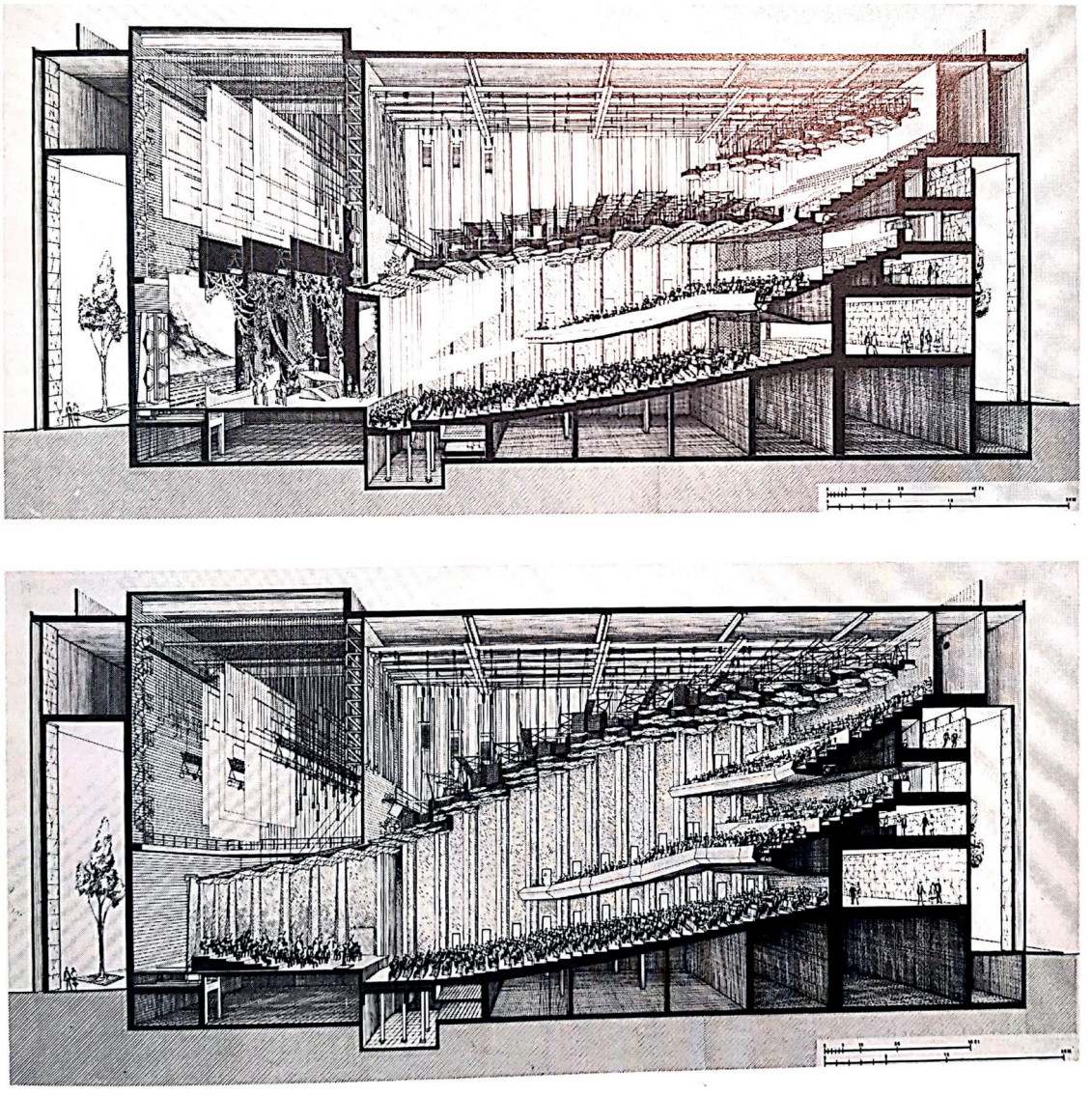


Scale
1:1.000 (70%)

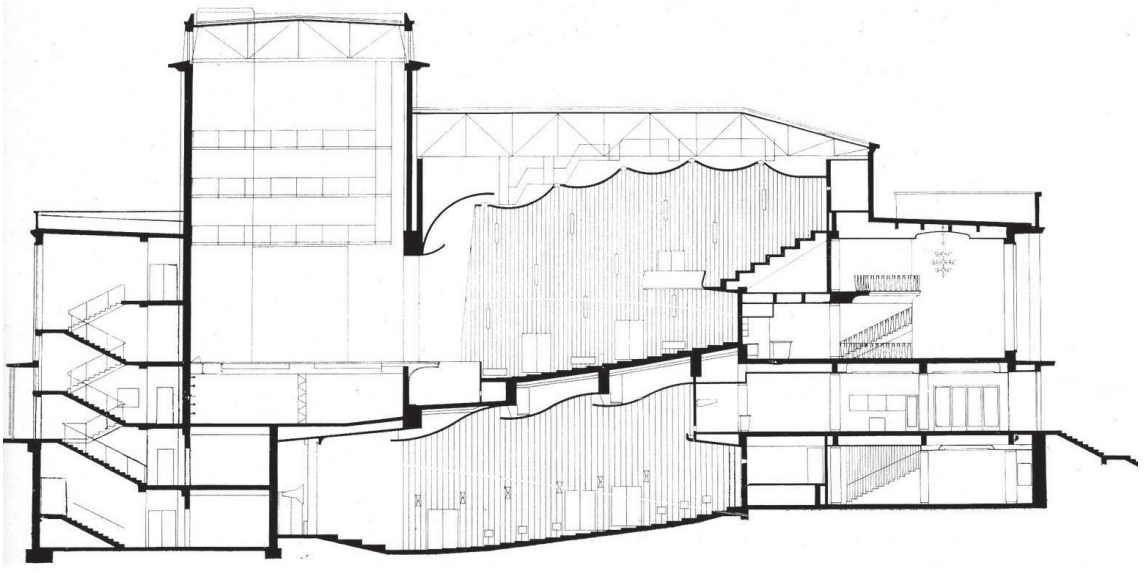
REFINED SHAPE

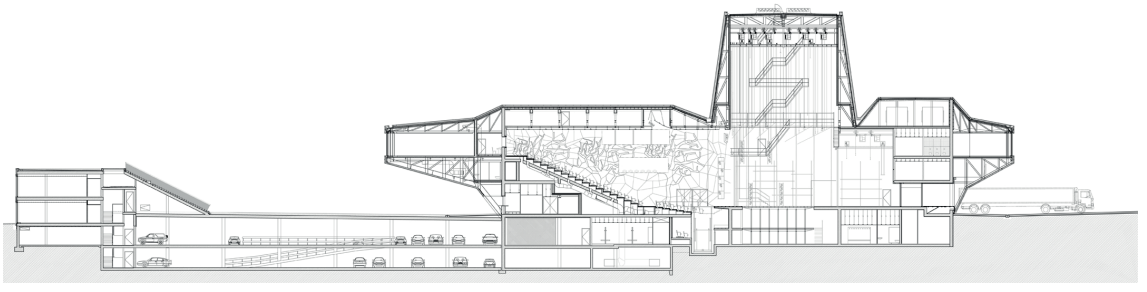
6.23.
Final concert hall form as a result of case study analysis.

THEATRE HALL: FORMS



6.24.
Jesse H. Jones Hall for the Performing Arts, Houston, Texas, by Caudill, Rowlett, and Scott, with consultants Bolt, Beranek, and Newman and G. C. Izenour, 1966. Top: theater mode; bottom: concert hall mode. Forsyth, M. (1985). *Buildings for Music.* p. 291.





THEATRE HALL

The second concert hall or theatre hall will be all about multiplicity in function. Initially the hall will be shaped more or less like a shoebox typology hall too, however a flytower and larger side and back stages will be added to allow for theatre plays, musicals, comedy, etc. to take place here as well. Because of this multi-purpose aim, the hall will have several solutions that allow for acoustic changes (see the images on the left page for example, for a movable ceiling).

6.25. (top)
Typical section of a theatre, showing the size of the fly tower as well as the slopes in the floor and ceiling.

6.26. (bottom)
Another example of a theatre hall in section, with large back stage.

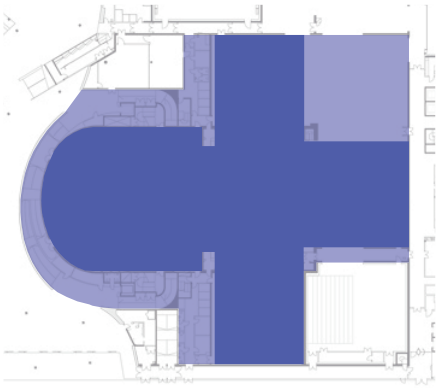




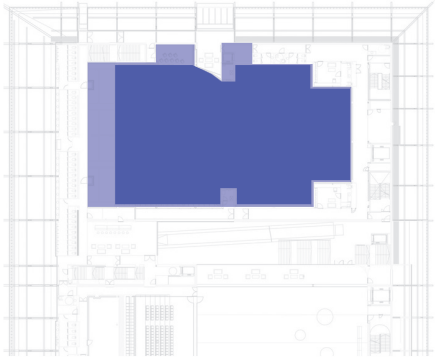
6.27.
Interior picture of one of the concert halls in Amare, The Hague.

FLOOR PLAN

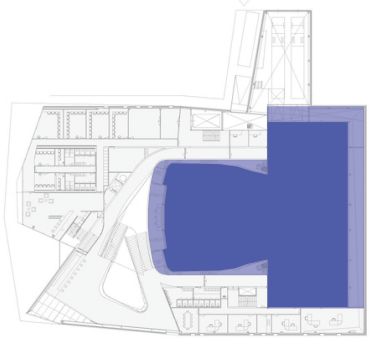
OSLO OPERA HOUSE, OSLO (SNØHETTA)



LA LLOTJA THEATRE AND CONFERENCE CENTRE, LLEIDA (MECANOO)



AGORA THEATRE, LELYSTAD (UNSTUDIO)

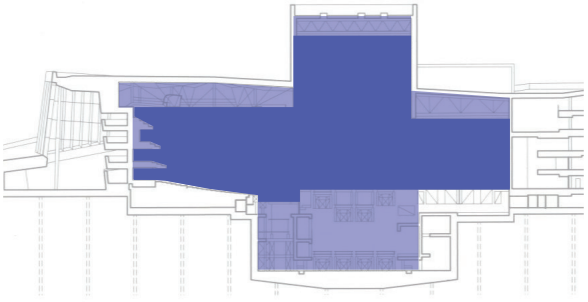


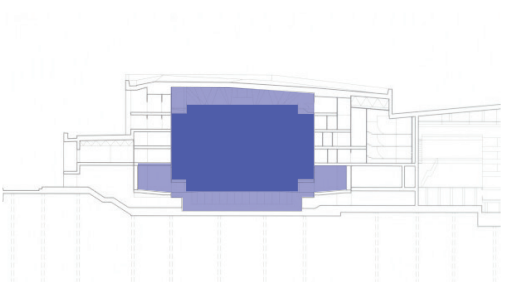
6.28.
Analysis of several theatre hall forms, traced in plan and section.

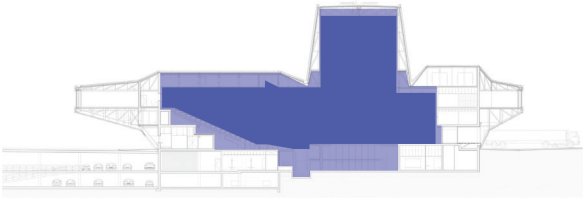
FORM EXAMPLES

LONGITUDINAL SECTION

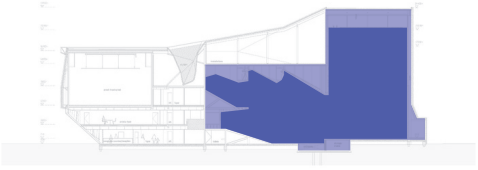
CROSS SECTION







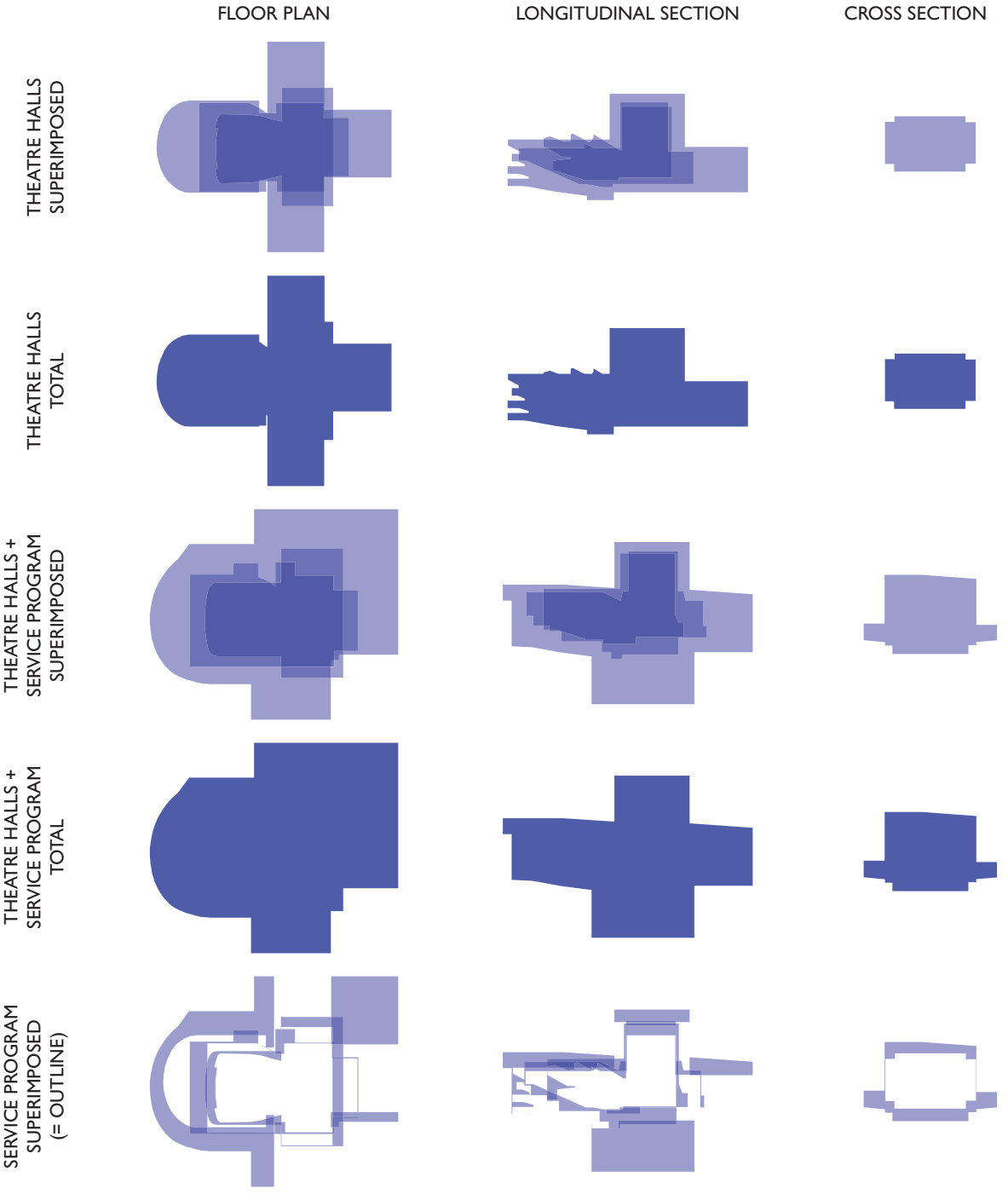
N/A



N/A

Services
Theatre hall

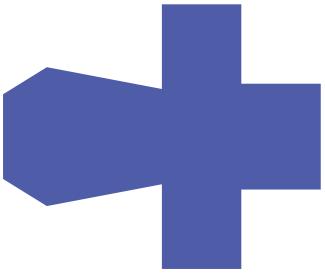
Scale
1:1.000 (70%)



ULTIMATE FORM

6.29.
Analysis of several theatre hall forms, superimposed to find an ultimate form.

FLOOR PLAN



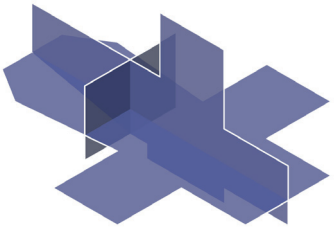
LONGITUDINAL SECTION



CROSS SECTION

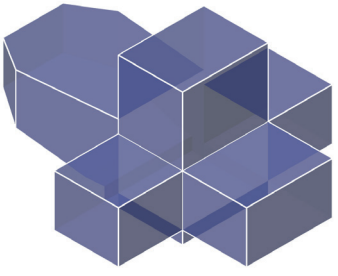


COMBINING





FINAL FORM

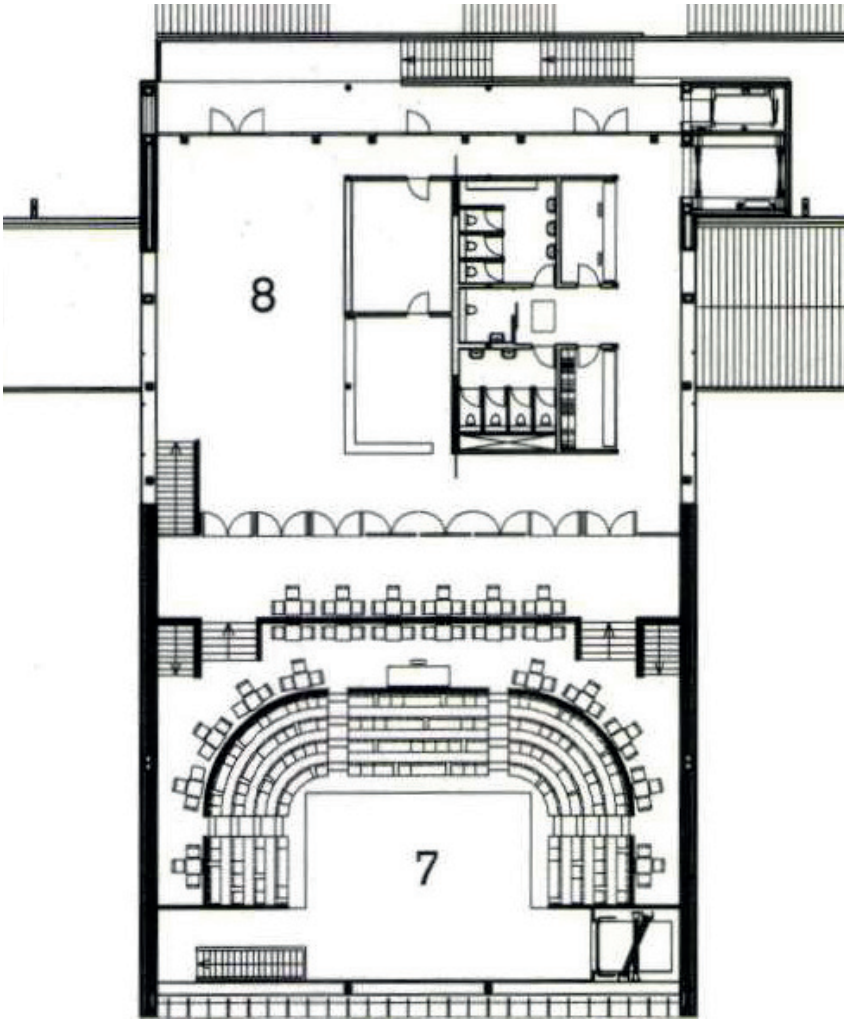


Scale
1:1.000 (70%)

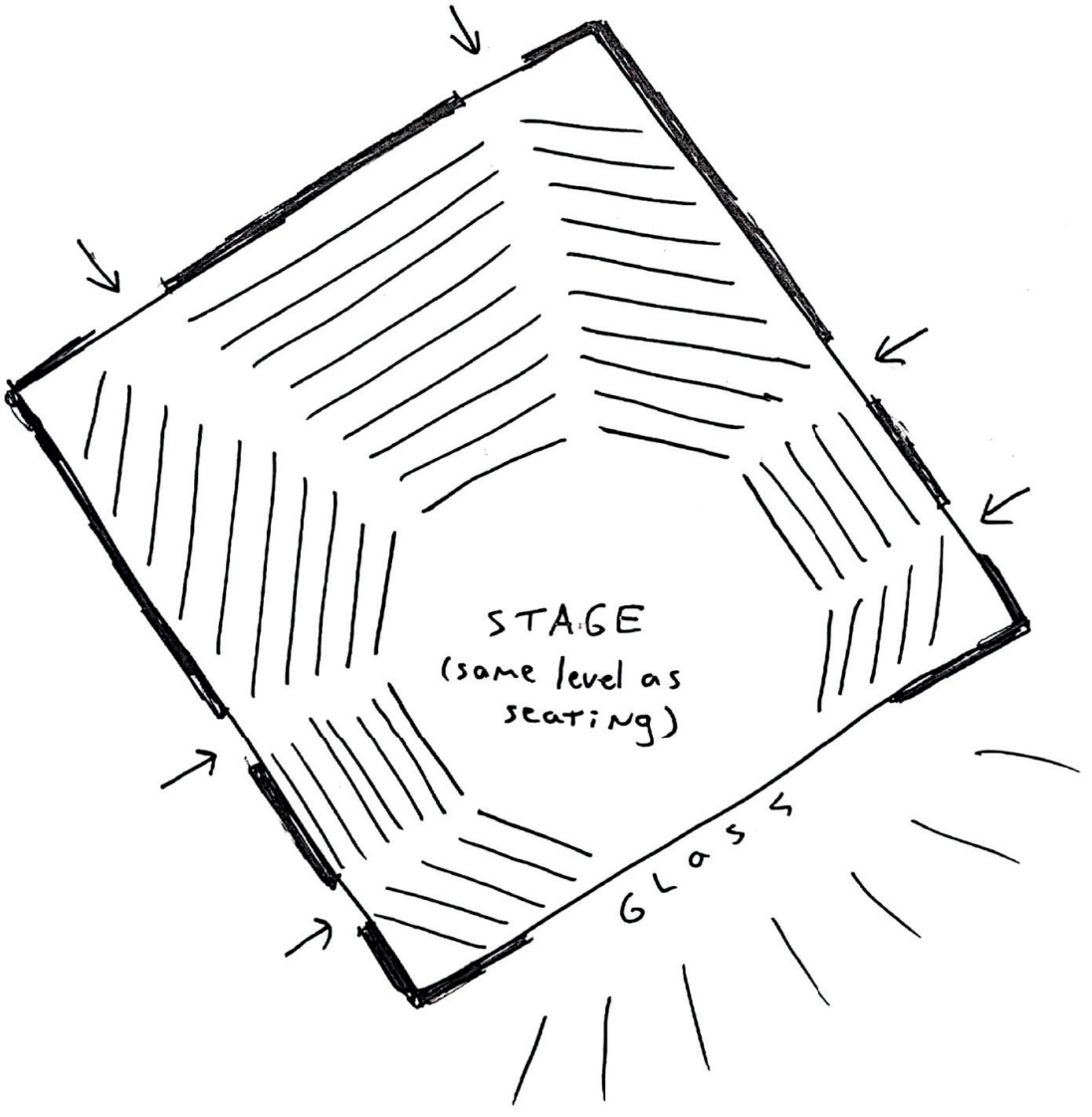
REFINED SHAPE

6.30.
Final theatre hall form as a result of case study analysis.

JAZZ HALL: FORMS



6.31.
Floor plan of the BIMHUIS, a chamber music room attached to the Muziekgebouw aan 't IJ with the hall itself (7) and a cafe in front (8).



JAZZ HALL

The third concert hall of the music venue will be a room specifically designed for chamber music, jazz and other performances that can have an intimate atmosphere. Because of the aim to create intimacy between the performer and the audience, the layout of the room will be somewhat shaped like an amphitheatre. An important aspect is that the stage will be on the same level as the seating, allowing the audience to sit right in front of the artists.

6.32.
Floor plan sketch of a possible layout of the chamber music room.

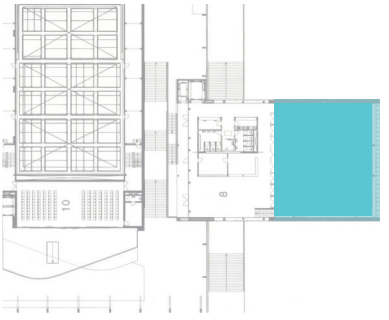




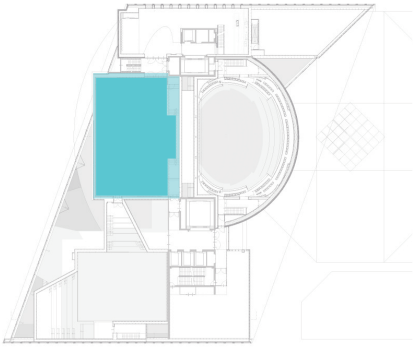
6.33.
Interior picture of the BIMHUIS jazz hall in Muziekgebouw 't IJ, Amsterdam.

FLOOR PLAN

BIMHUIS,
AMSTERDAM
(STUDIO C
ARCHITECTEN &
3XN)



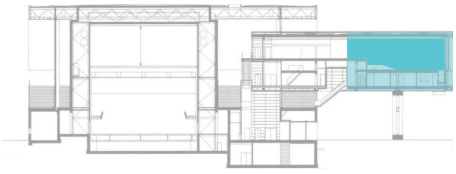
TIVOLI
VREDENBURG
(CLOUD NINE),
UTRECHT
(HERMAN
HERTZBERGER,
THIJS ASSELBERGS)

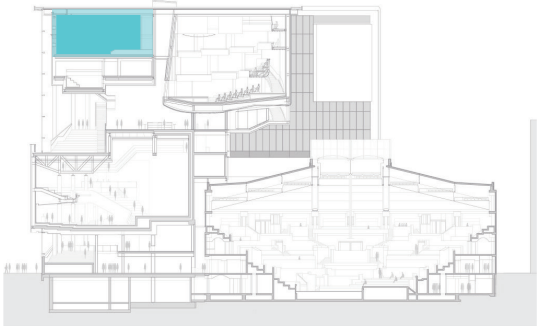


FORM EXAMPLES

6.34.
Analysis of several jazz hall forms, traced in plan and section.

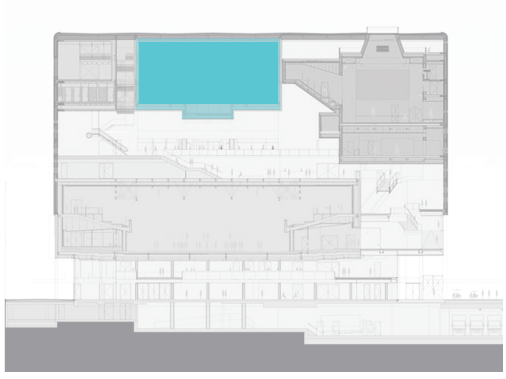
LONGITUDINAL SECTION





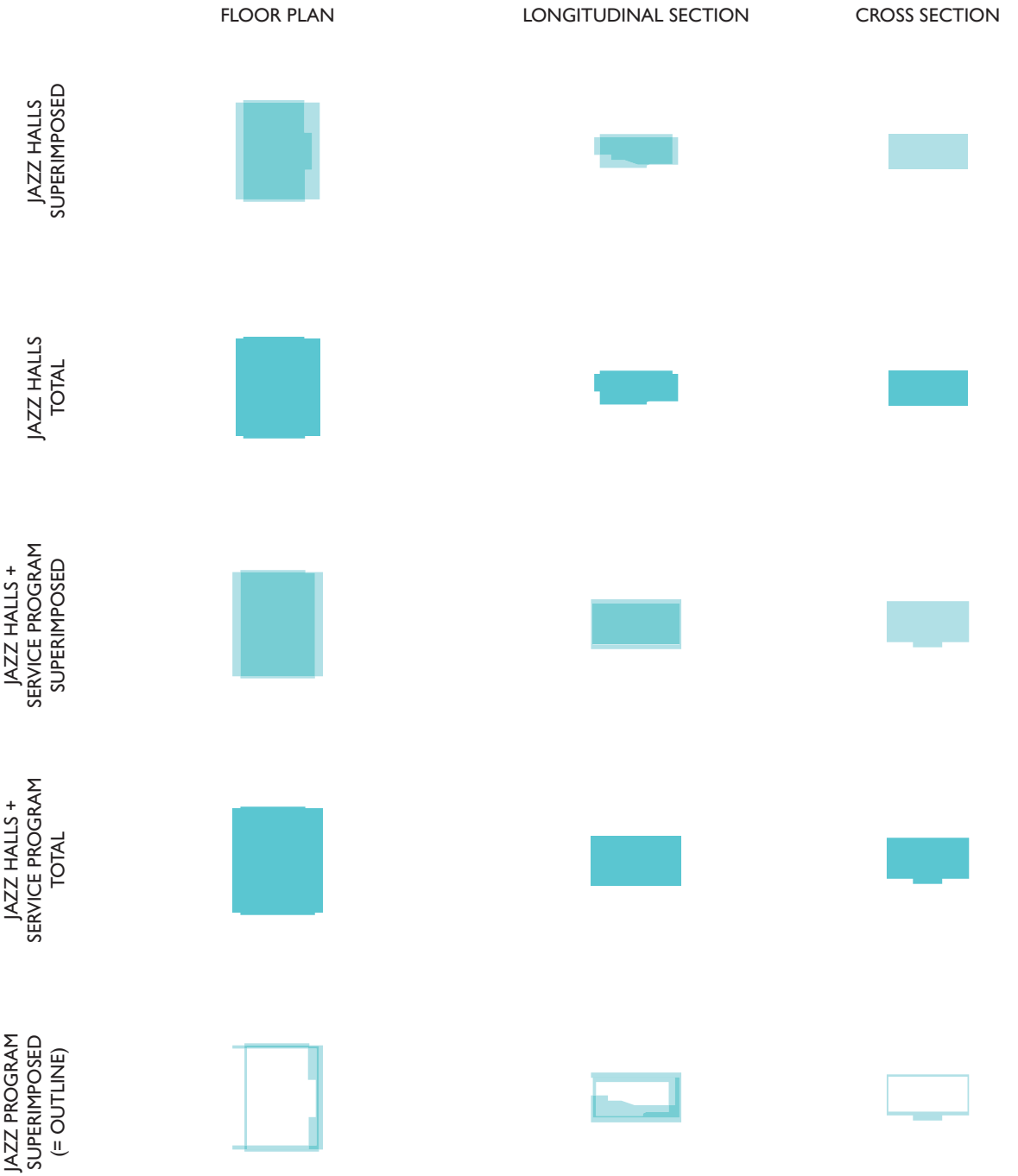
CROSS SECTION

N/A



Services
Jazz hall

Scale
1:1.000 (70%)



6.35.
Analysis of several jazz hall forms, superimposed to find an ultimate form.

ULTIMATE FORM

FLOOR PLAN



LONGITUDINAL SECTION



CROSS SECTION

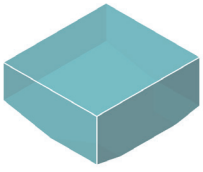


COMBINING





FINAL FORM



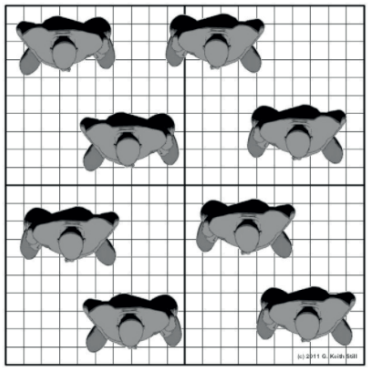
Scale
1:1.000 (70%)

REFINED SHAPE

6.36.
Final jazz hall form as a result of case study analysis.

FOYER SIZES





MAIN CONCERT HALL	SIZE: ± 2.000 m^2 CAPACITY: ± 2.500 p.	FOYER: 0,5 m^2 / p. = **1.250 m^2**
THEATRE HALL	SIZE: ± 1.000 m^2 CAPACITY: ± 1.500 p.	FOYER: 0,5 m^2 / p. = **750 m2**
JAZZ HALL	SIZE: ± 400 m^2 CAPACITY: ± 600 p.	FOYER: 0,5 m^2 / p. = **300 m2**

HOW MUCH FOYER SPACE IS NEEDED?

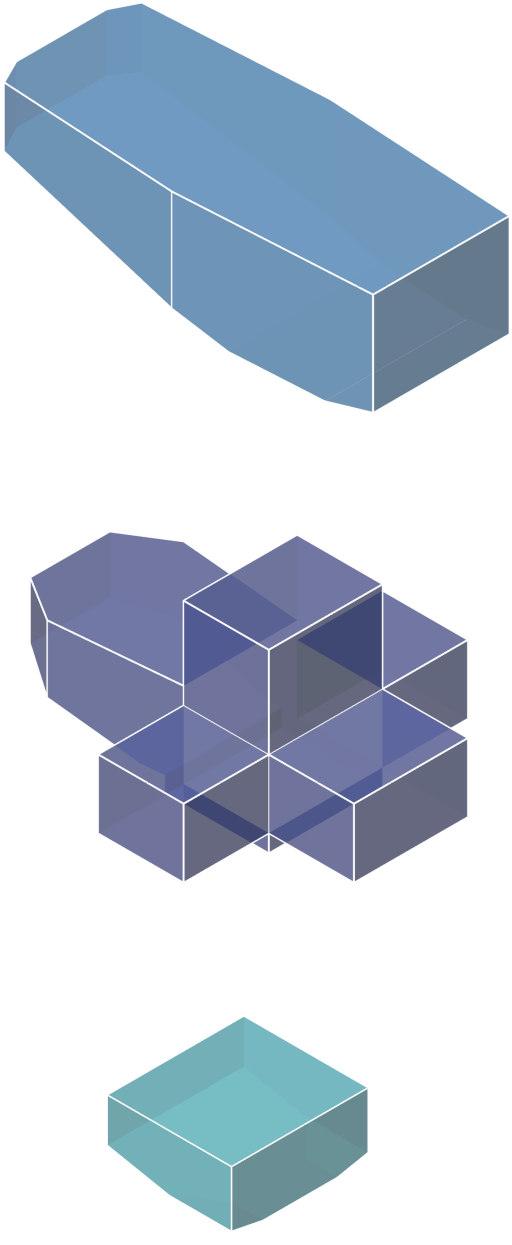
The foyers will be used by visitors to wait before the start of a concert and to collectively have a drink after the concert for example. The size of these foyers depends on the amount of people that should fit in the foyer. It will thus be determined by the amount of people that can fit in the concert halls. To define the size of the foyers, a standing crowd with a density of 2 persons per square meter (or 0,5 m2 per person) is chosen. This density provides free movement (no restrictions), making the space both feel open and safe (no traffic jams in case of an emergency for example).

6.37. (top left)
Impression of a crowd with a density of 2 persons per square meter.

6.38. (top right)
Plan view of a crowd with a density of 2 persons per square meter.

6.39. (right page)
Overview of the three ultimate hall typology forms.

THE THREE HALLS



7. FESTIVALS



7.01.
Aerial photograph of Mysteryland festival.



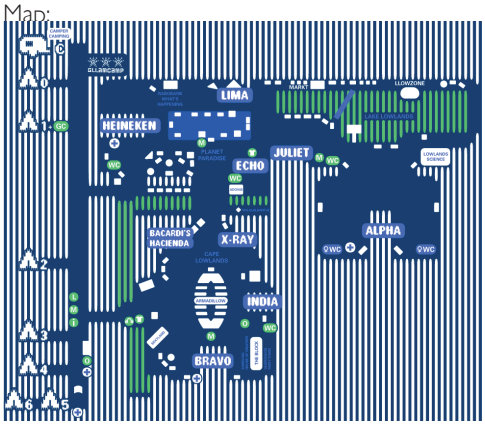
FESTIVALS

LOWLANDS

Visitors: 60.000

Genres: dance / rock / pop / alternative

Map:



Impression:



Atmosphere: open, artistic

PINKPOP

Visitors: 115.000

Genres: rock / hiphop / electronic

Map:



Impression:



Atmosphere: very open, central stage

7.02 t/m 7.05

MYSTERYLAND

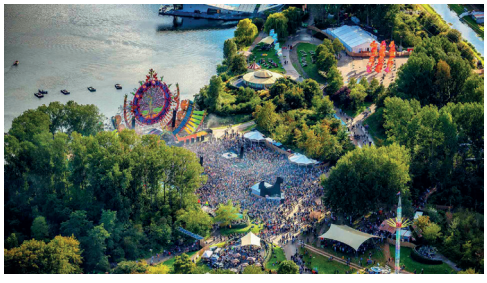
Visitors: 100.000

Genres: techno / house / trance / dance

Map:



Impression:



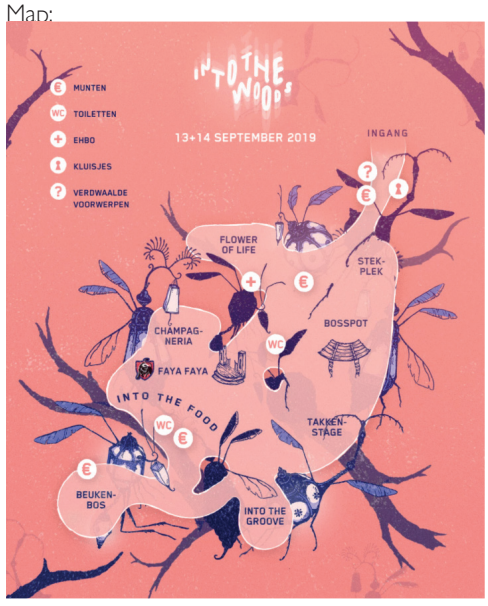
Atmosphere: multiple outdoor spaces, former Floriade terrain, open, woods

INTO THE WOODS

Visitors: 17.000

Genres: techno / house / hiphop / punk

Map:



Impression:



Atmosphere: closed, intimate, forest, magical, psychedelic

7.06 t/m 7.09

BEST KEPT SECRET

Visitors: 25.000

Genres: indie / rock / folk / hiphop

Map:



Impression:



Atmosphere: nature, water

DOWN THE RABBIT HOLE

Visitors: 35.000

Genres: alternative, hiphop, indie, soul

Map:



Impression:



Atmosphere: open, green, idyllic

7.10 t/m 7.13

DECIBEL

Visitors: 60.000

Genres: hardcore / hardstyle / industrial

Map:



Impression:



Atmosphere: multiple outdoor spaces, open, green, artificial

ZWARTE CROSS

Visitors: 220.000

Genres: rock / blues / dance / motor event

Map:



Impression:



Atmosphere: very open, adventurous, multiple outdoor spaces

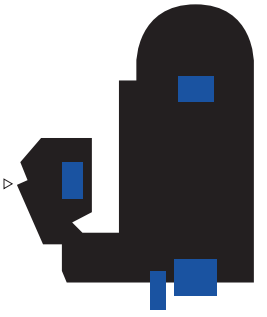
7.14 t/m 7.17

FESTIVAL SPACE: ANALYSIS

LOWLANDS



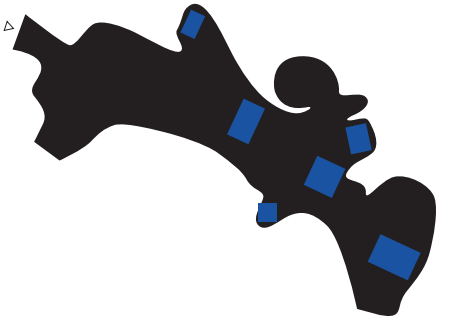
PINKPOP



BEST KEPT SECRET

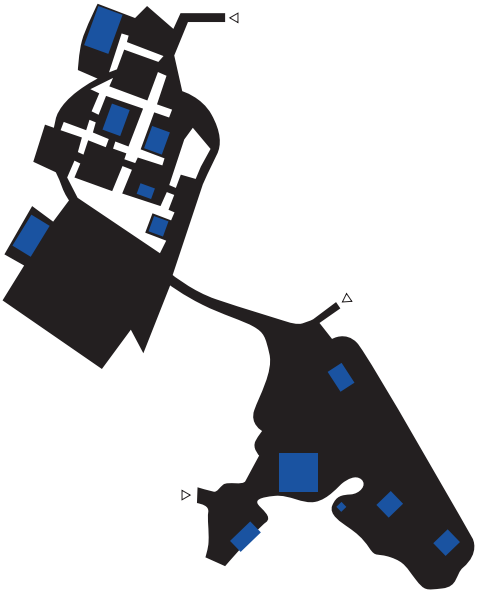


DOWN THE RABBIT HOLE



7.18 t/m 7.21

MYSTERYLAND



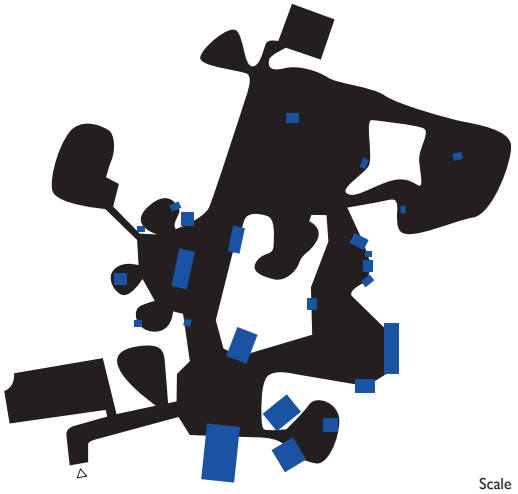
INTO THE WOODS



DECIBEL



ZWARTE CROSS

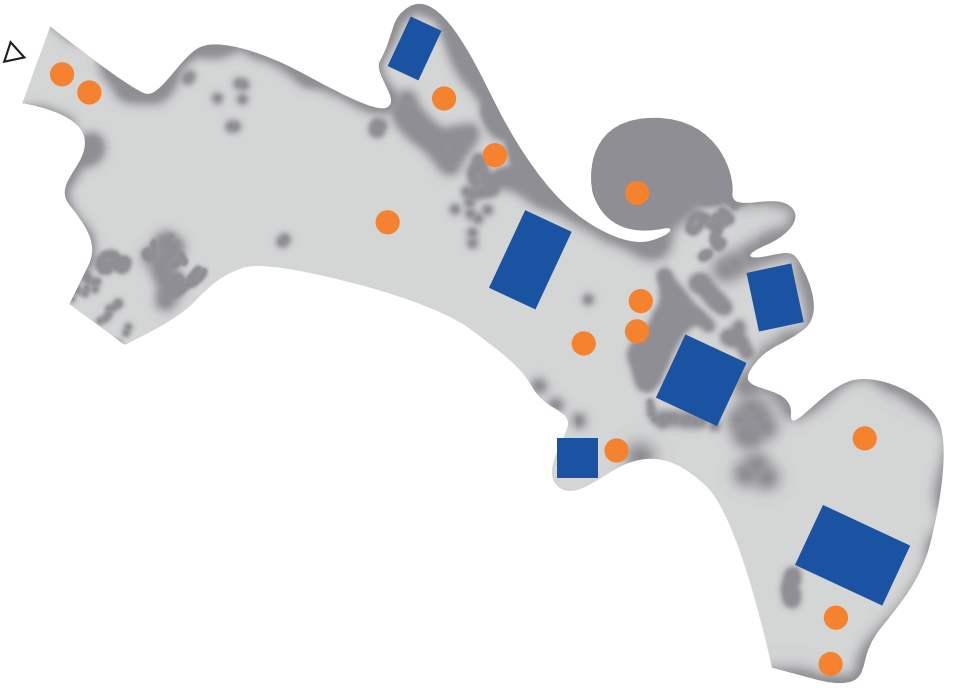


Stage
Festival terrain

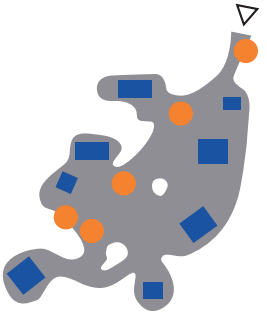
Scale
1:10.000 (70%)

7.22 t/m 7.25

DOWN THE RABBIT HOLE



INTO THE WOODS

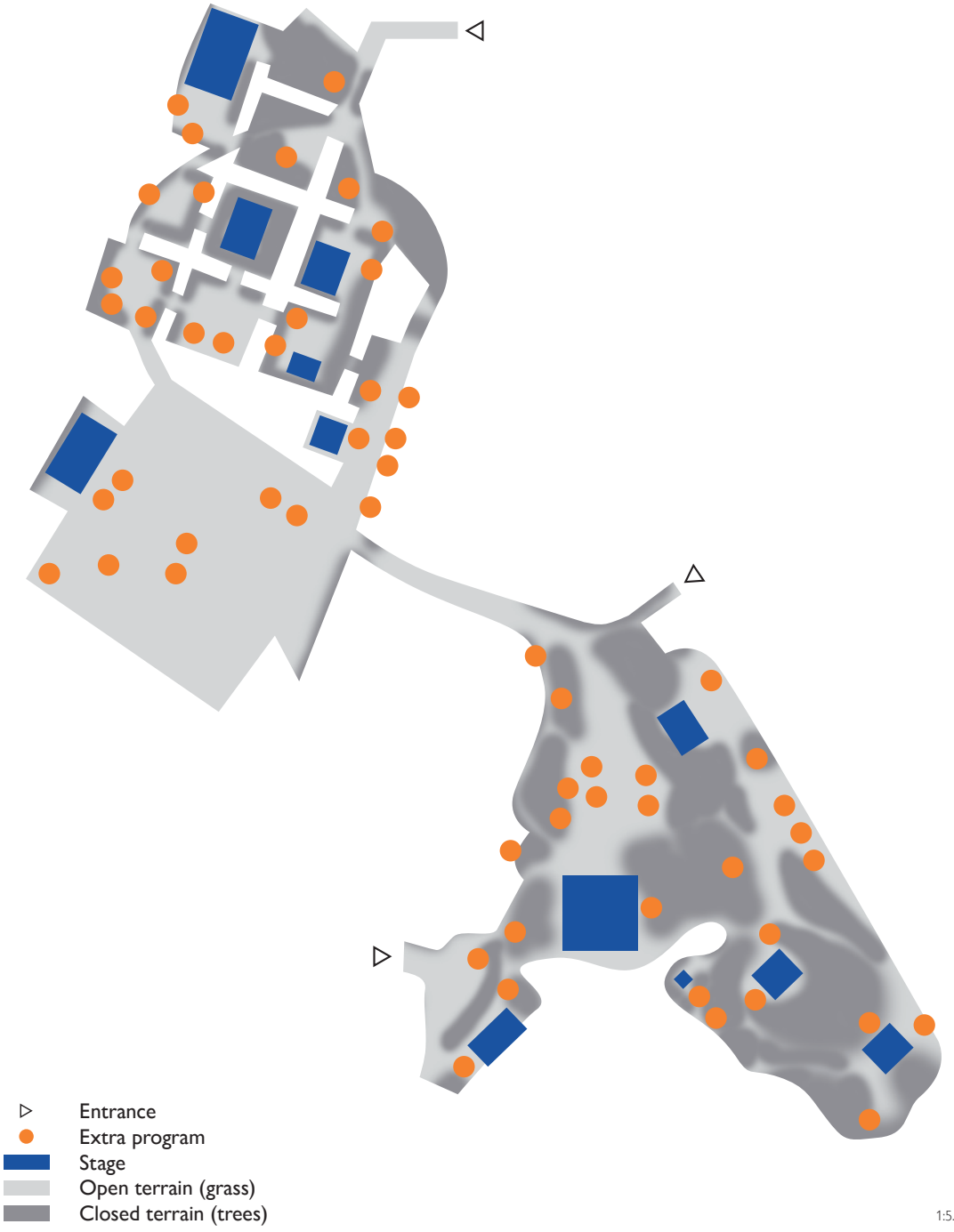


7.26. (left page, top)
Analysis of Down The Rabbit Hole festival floor plan, indicating the location of stages, program and the openness of the terrain.

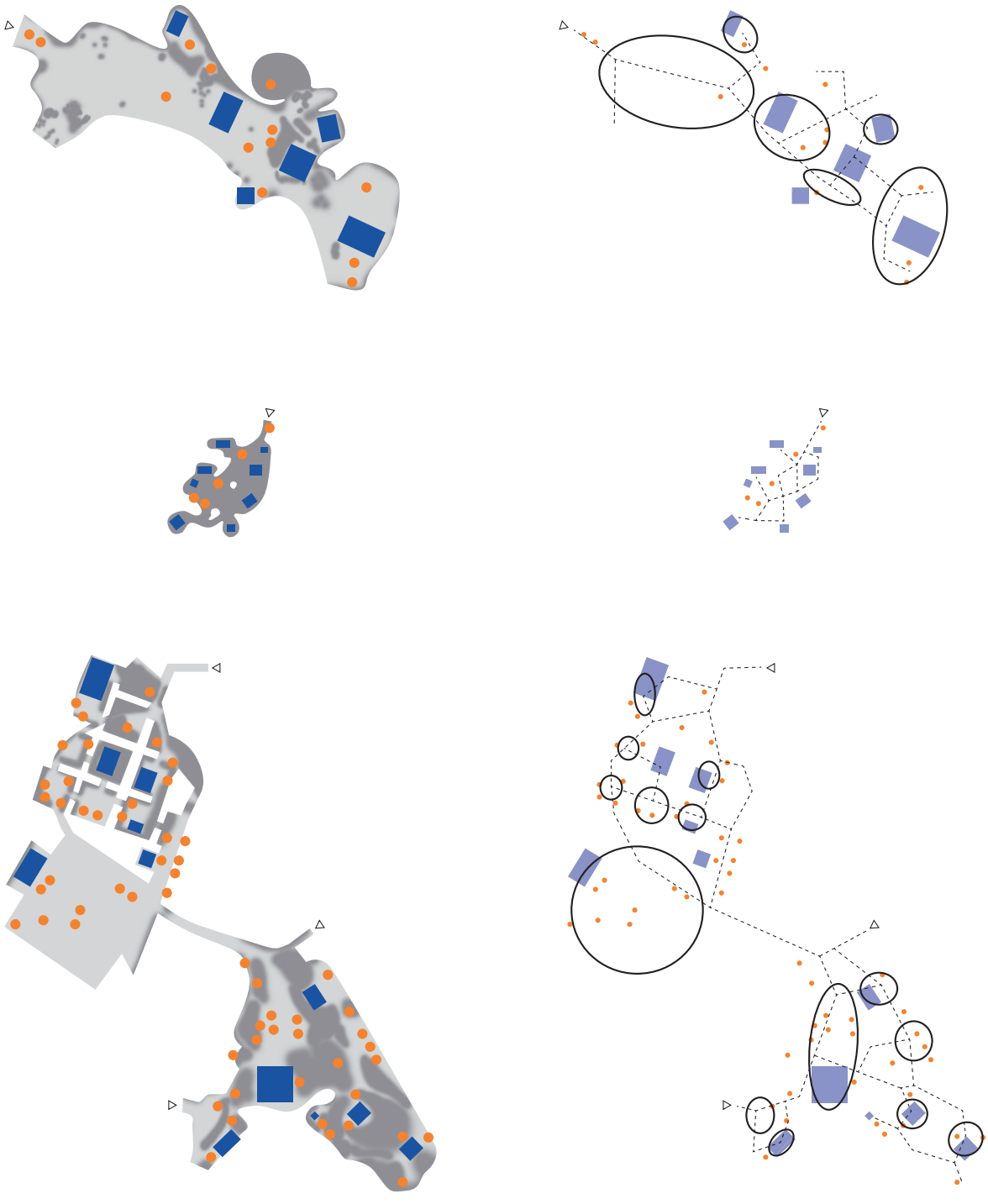
7.27. (left page, bottom)
Analysis of Into The Woods festival floor plan, indicating the location of stages, program and the openness of the terrain.

7.28. (right page)
Analysis of Mysteryland festival floor plan, indicating the location of stages, program and the openness of the terrain.

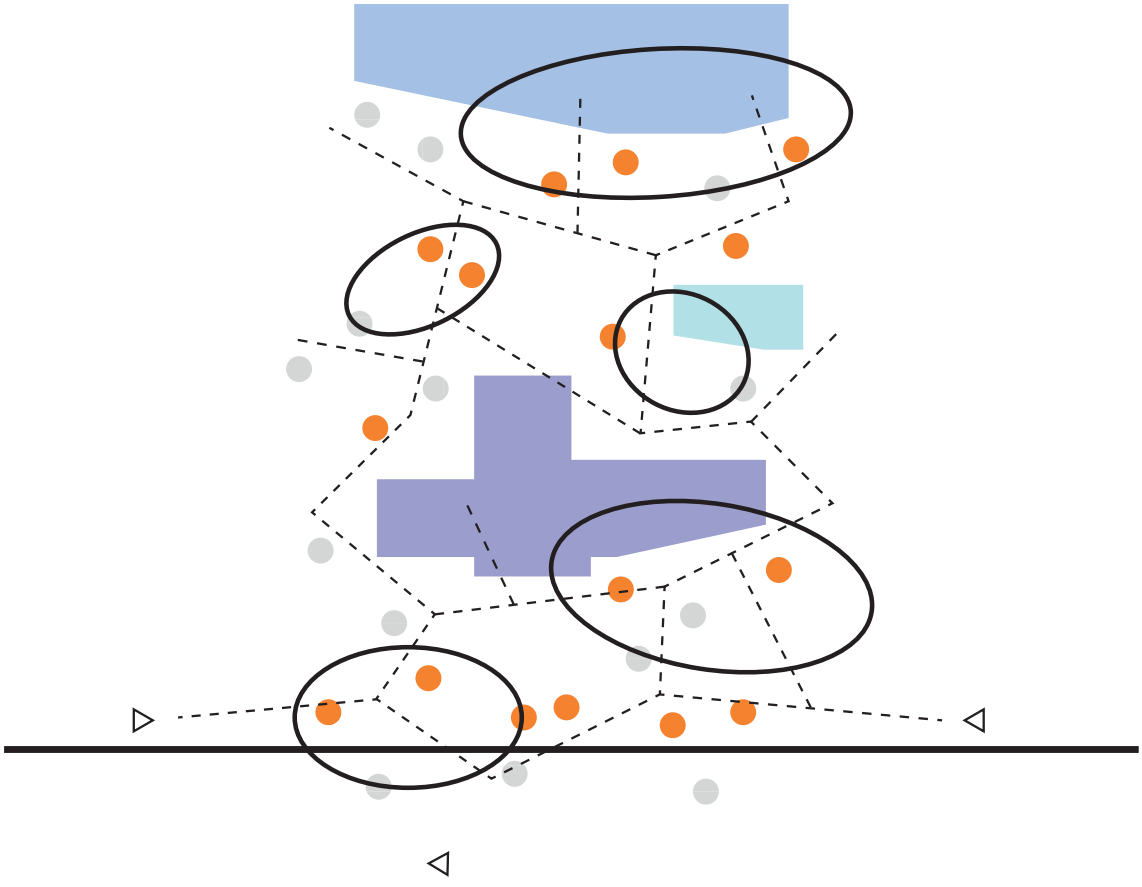
MYSTERYLAND



Scale
1:5.000 (80%)


Main paths
Open space
Scale
1:10.000 (80%)

A **FESTIVAL TERRAIN** CONSISTS OF A SEQUENCE OF **OPEN AND CLOSED SPACES**, WHICH ARE FREE TO **EXPLORE** IN ALL DIRECTIONS. ALL THE **STAGES** AND OTHER TYPES OF **PROGRAM** (SUCH AS BARS, STANDS AND ART INSTALLATIONS) ARE PLACED AROUND THESE SPACES, EVENLY **SPREAD OUT** OVER THE WHOLE FESTIVAL TERRAIN.



Entrance
Extra program (public)
Extra program (private)
"Stage"
Main paths
Open space

7.29. t/m 7.34. (left page)
Further abstraction of festival plans, highlighting paths and open spaces.

7.35. (right page)
Festival analysis translated to design (shown in section).

ATMOSPHERES

LARGE OPEN SPACE



XXL open space at Pinkpop, the crowd gradually becomes less dense further away from the stage.



The large structure of the open tent encloses the terrain in front of the stage. and ensures a large continuous space because columns are not neccessary.



All sorts of activities are evenly spread out within this large, open festival terrain.

INTIMATE SPACE (WOODS)



Trees (percieved as columns within the festival terrain) create a canopy above the space.



A dense forest with small open spaces at the Down The Rabbit Hole festival provides an intimate space.



Pathways can be part of the spaces where activities take place, to connect several spots.

7.36 t/m 7.41

STANDS / BOOTHS



Stands (for drinks and / or food) are usually very thematic and have a temporary look.



Signage and decoration are important aspects with stands on festival terrains. Often, several activities (like sitting on a swing) take place at these spots.



Again, a lot of decoration, almost theatrical, and a temporary appearance.

STRUCTURES / INSTALLATIONS



Scattered around festival terrains, usually several artistic installations can be found.



These structures add to the experience and amplify the music / acts and the ideas the festival wants to carry out.



Activities can take place at these structures.

7.42 t/m 7.47

LARGE OPEN SPACE



CHARACTERISTICS:

- open but can be crowded
- one continuous space
- big events
- can contain other activities

SPACES:

ENTRANCE AREA
THEATRE HALL
MAIN CONCERT HALL

STRUCTURE:

- large spans, steel (space) frames, trusses
- open space, no walls or columns



INTIMATE SPACE (WOODS)



CHARACTERISTICS:

- enclosed and intimate
- intense experience
- exciting to explore (improvising?)

SPACES:

CHAMBER MUSIC / JAZZ HALL
REHEARSAL STUDIOS
WORKSHOPS
BACKSTAGE

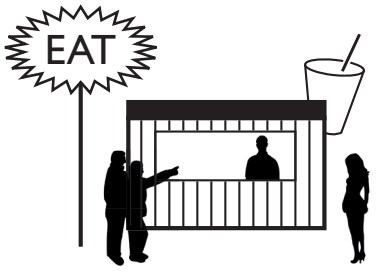
STRUCTURE:

- more conventional, columns, slabs
- closed appearance (small grid), "forest"



7.48 t/m 7.51

STANDS / BOOTHS



CHARACTERISTICS:

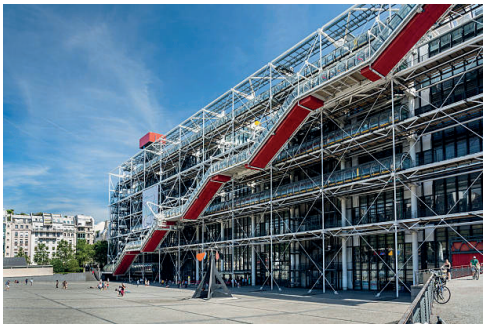
- signs and decorations
- informal, temporary
- quick
- meeting other people

SPACES:

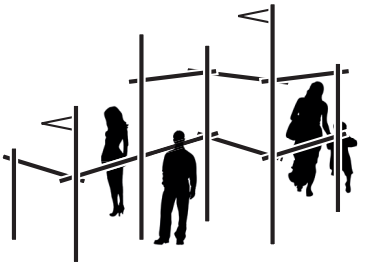
ALL FOYERS
ENTRANCE AREA
SHOP
CAFE

STRUCTURE:

- simple, "temporary" character
- timber frame or scaffolding structure?



STRUCTURES / INSTALLATIONS



CHARACTERISTICS:

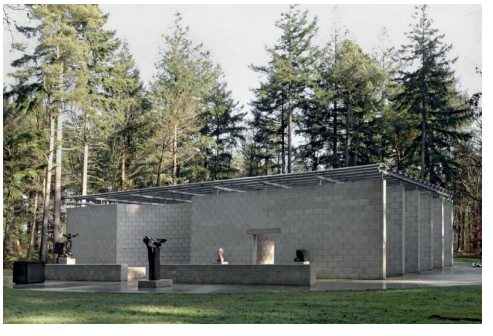
- artistic
- interaction with visitors
- amplifies other program

SPACES:

ALL FOYERS
ENTRANCE AREA
THEATRE HALL
WORKSHOPS

STRUCTURE:

- "improvised" and unconventional solutions
- free, asymmetrical and non-orthogonal



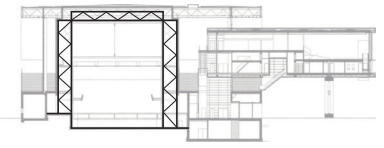
7.52 t/m 7.55

8. CONSTRUCTION

CONSTRUCTION TYPES

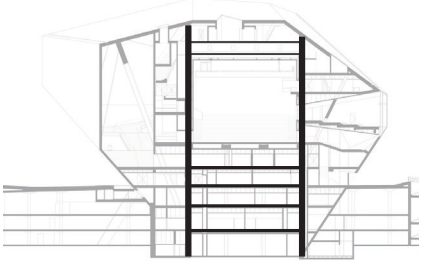
CONCERT HALLS

MUZIEKGEBOUW AAN 'T IJ, AMSTERDAM (3XN):



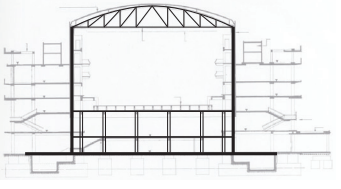
Construction type: frame of trusses, standing on the ground.

CASA DA MUSICA, PORTO (OMA):



Construction type: solid, load bearing walls and floors (+ columns).

ROYAL FESTIVAL HALL, LONDON (LESLIE MARTIN, ROBERT MATTHEW & PETER MORO):



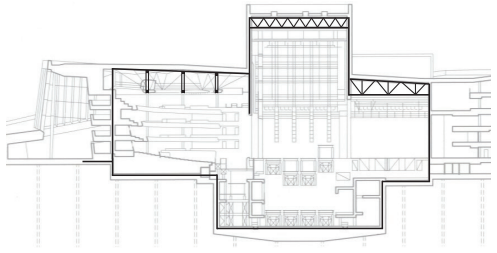
Construction type: load bearing walls with a bowstring truss, columns to support the concert hall floor.

HALLS: CONSTRUCTION TYPOLOGIES

8.01.
Analysis of constructions used for different concert hall typologies, using the same case studies as with the analysis of concert hall forms.

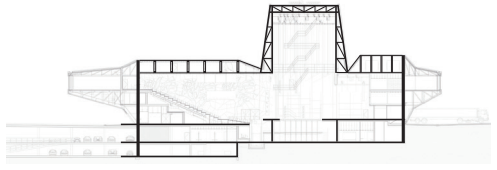
THEATRE HALLS

OSLO OPERA HOUSE, OSLO (SNØHETTA):



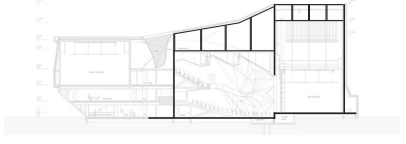
Construction type: not entirely clear, probably a steel frame on a concrete base.

LA LLOTJA THEATRE AND CONFERENCE CENTRE, LLEIDA (MECANOO):



Construction type: similar to Oslo Opera House, steel frame on a concrete base (also some load bearing walls).

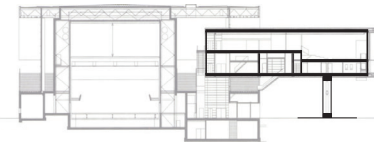
AGORA THEATRE, LELYSTAD (UNSTUDIO):



Construction type: similar to above, steel frame on a concrete base.

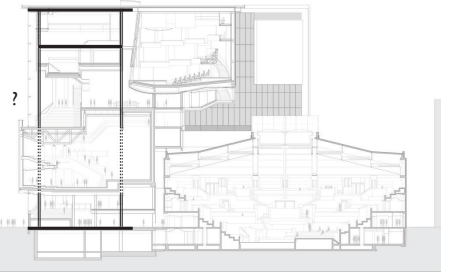
CHAMBER MUSIC / JAZZ HALLS

BIMHUIS, AMSTERDAM (STUDIO C ARCHITECTEN & 3XN):



Construction type: steel frame box on iconic column with bracing.

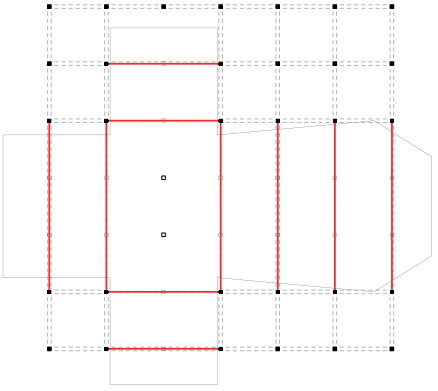
TIVOLI VREDENBURG (CLOUD NINE), UTRECHT (HERMAN HERTZBERGER, THIJS ASSELBERGS):



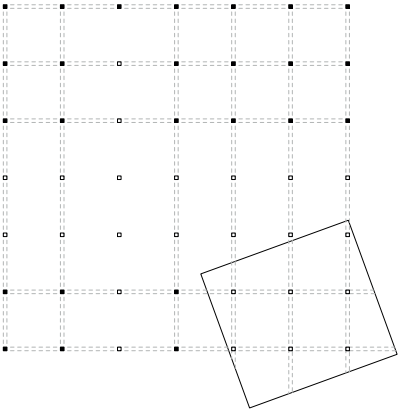
Construction type: not entirely clear, it looks like a steel structure with concrete slabs, integrated in the larger structure of the whole building (attached to the facade and roof).

Scale
1:2.000

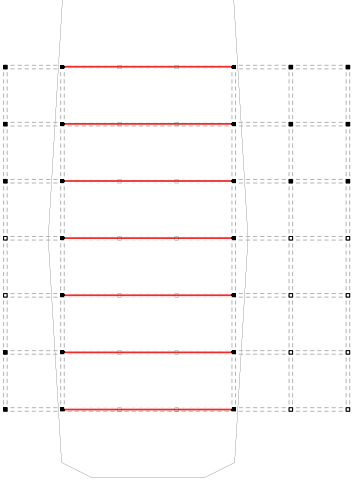
CONSTRUCTION DESIGN



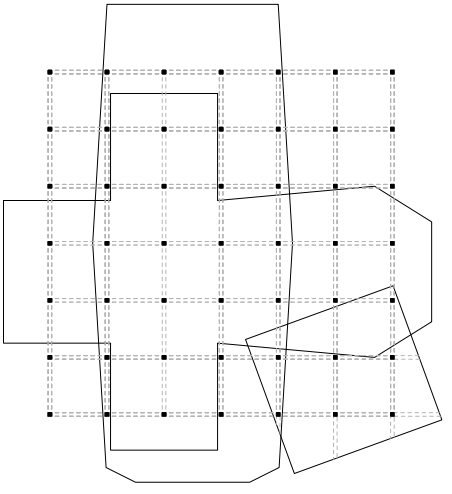
THEATRE HALL LEVEL



JAZZ HALL LEVEL



CONCERT HALL LEVEL



TOTAL HALLS

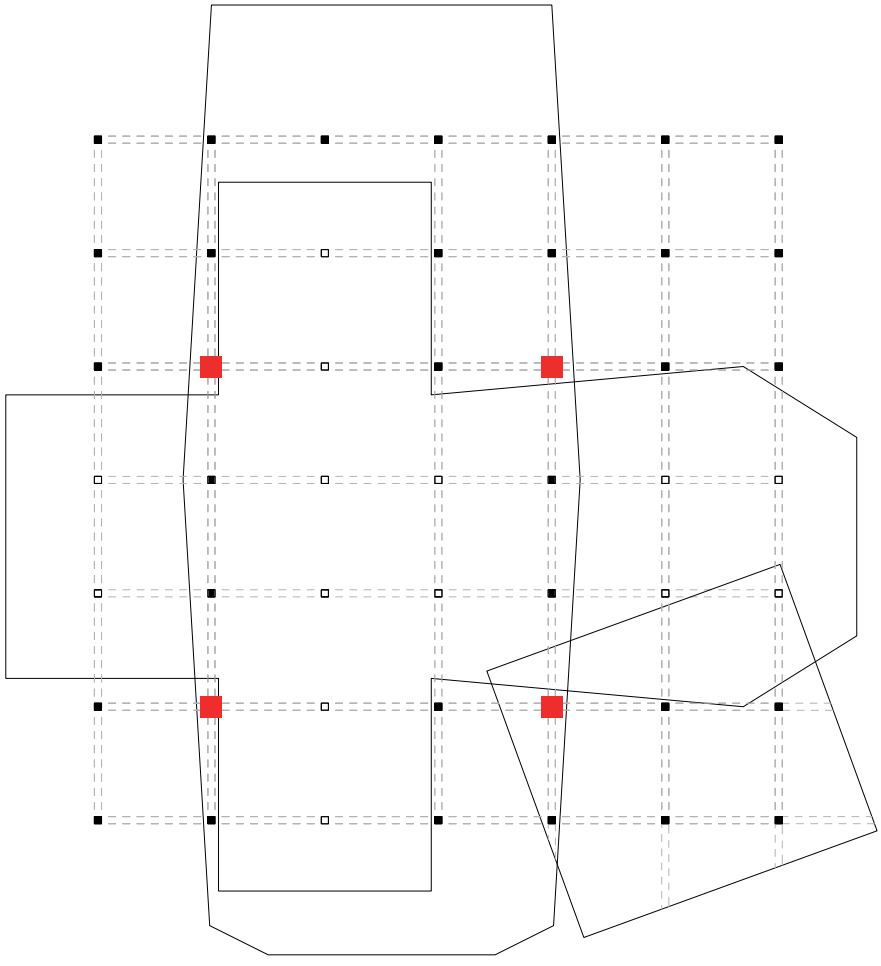
HALLS IN STRUCTURE

8.02. (top, left)
Conceptual construction plan theatre hall level.

8.03. (top, right)
Conceptual construction plan jazz hall level.

8.04. (bottom, left)
Conceptual construction plan concert hall level.

8.05. (bottom, right)
Conceptual construction plan all levels.

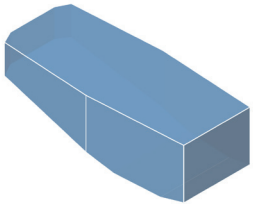


LARGE SPANS

Strategic placement of halls above each other to limit expensive and difficult construction solutions.
Max. span (for both the theatre hall and the concert hall) = 24 meters, to be solved using trusses.
Main concert hall to be placed on separate structure (red spots in the plan on the right), acoustically detached from the rest of the building.

8.06.
All halls (outlines) superimposed, indicating challenges regarding the construction.

CONCERT HALL



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JAZZ HALL



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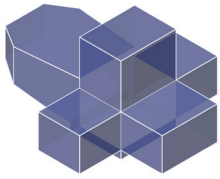
THEATRE HALL



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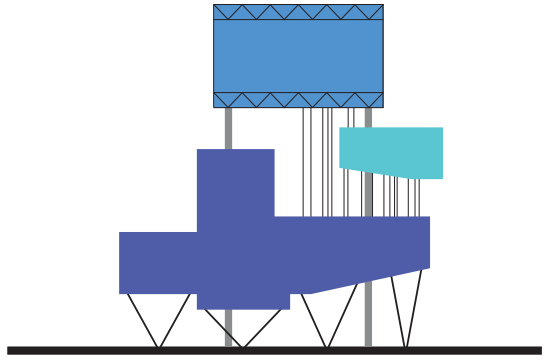
SPACE-WISE, THE TYPE OF **STRUCTURE** IS LOCATED NEAR THE **TYPE OF HALL** THAT IT RELATES TO, BUT **CONSTRUCTION-WISE**, IT COULD SUPPORT A **DIFFERENT HALL**.



8.07. (top)
Possible construction types related to the wanted atmosphere for each hall.

8.08. (bottom)
All three halls and their proposed construction.

CONCERT HALL

grand
hi-tech
elegant

+

JAZZ HALL

intimate
closed
explorative

+

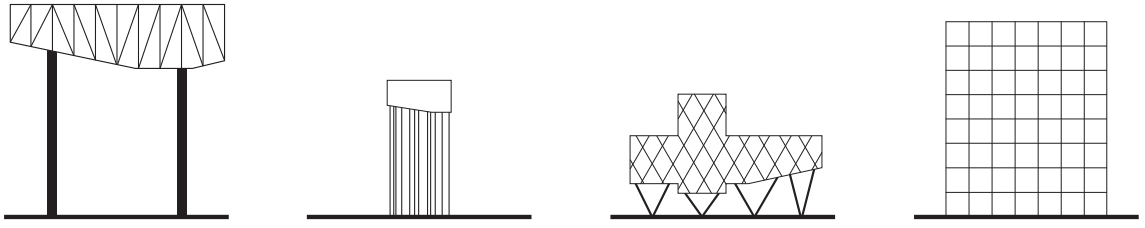
THEATRE HALL

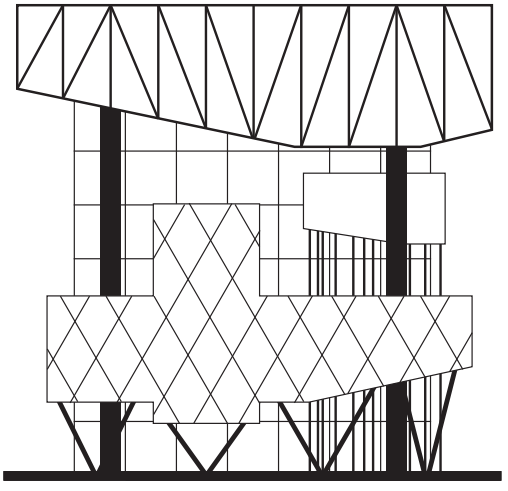
in the spotlights
showy
artistic

+

FESTIVAL SPACE

systematic
flexible
basis



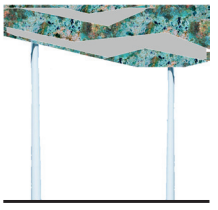


8.09. (top)
Scheme of individual construction solutions for each hall.

8.10. (bottom)
All three halls and their proposed construction.







Perhaps the masts of old(er) wind turbines that are at the end of their lifespan, can be used for supporting the large concert hall.



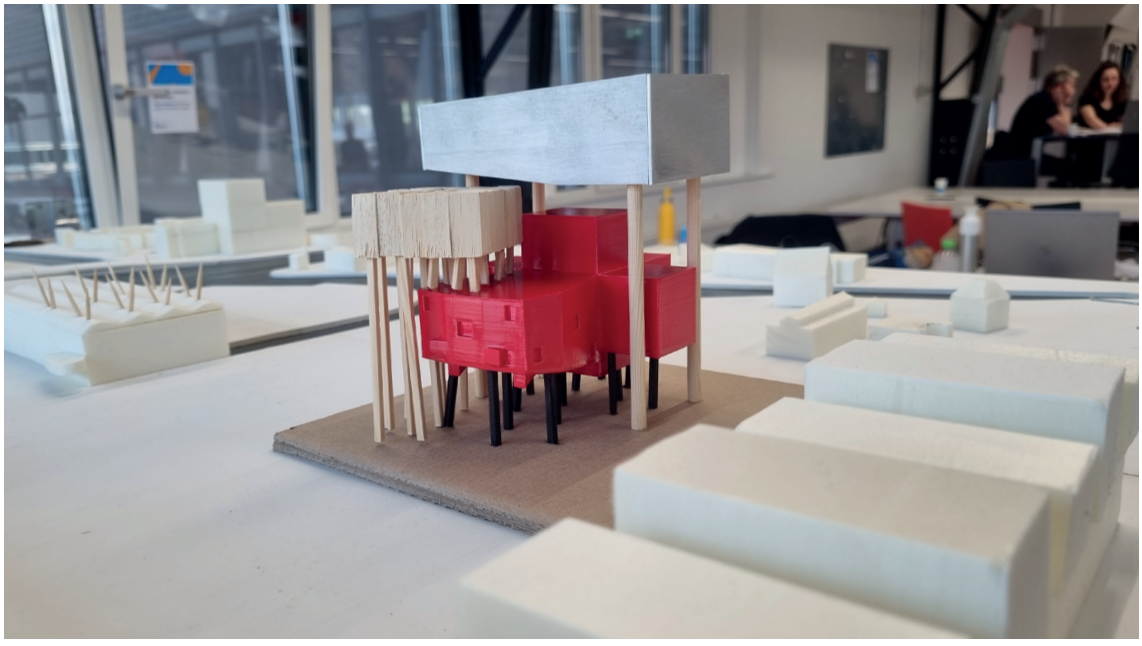


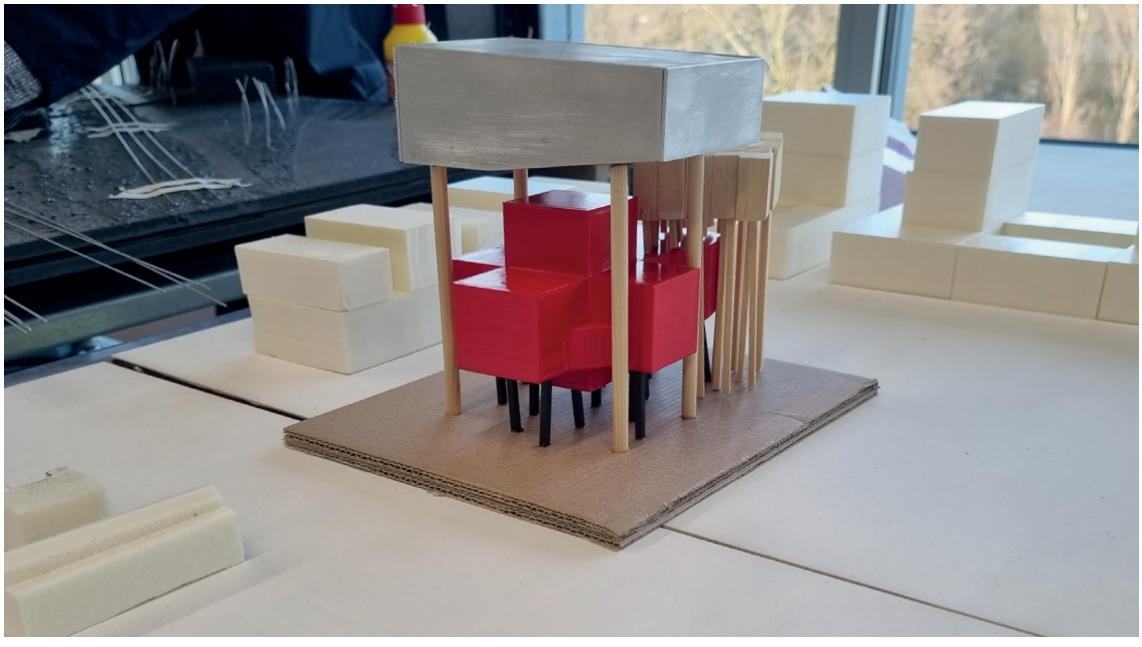


Maybe real trees can be used as columns to support the jazz hall, to add to the idea of temporary structures and to enhance the natural environment around the jazz hall.

TO ADD TO THE FEELING OF A **FESTIVAL**, CONSTRUCTION ELEMENTS CAN HAVE A "**TEMPORARY**" APPEARANCE, THROUGH **RE-USE**, WHICH ALSO CONTRIBUTES TO **CIRCULARITY**.

8.11.
Wild idea: use wind turbine masts and tree trunks for the construction.

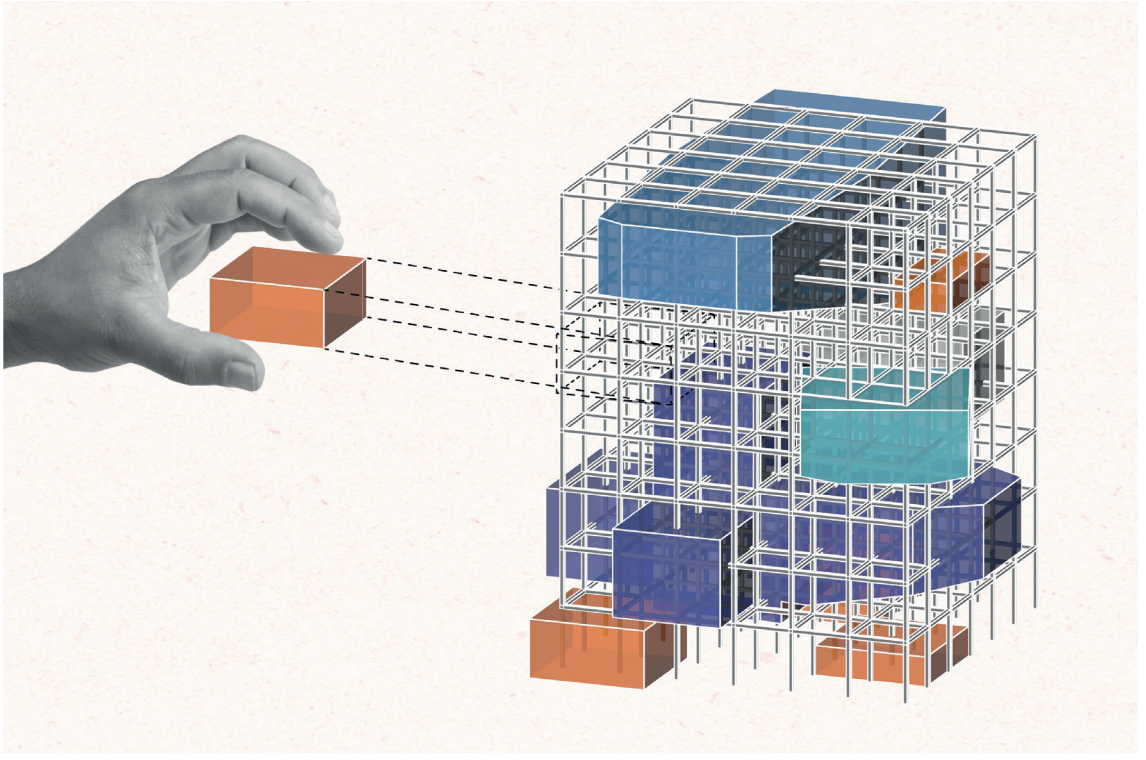


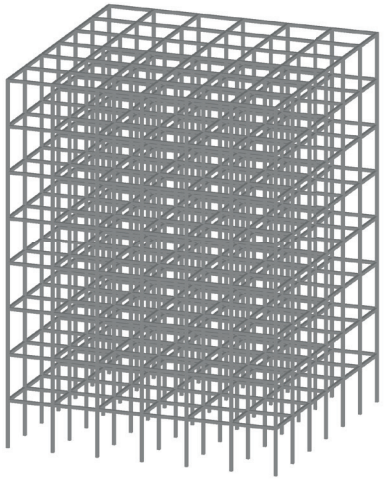


8.12. (top)
Physical 1:500 construction model in context.

8.13. (bottom)
Physical 1:500 construction model in context.

SUPERSTRUCTURE

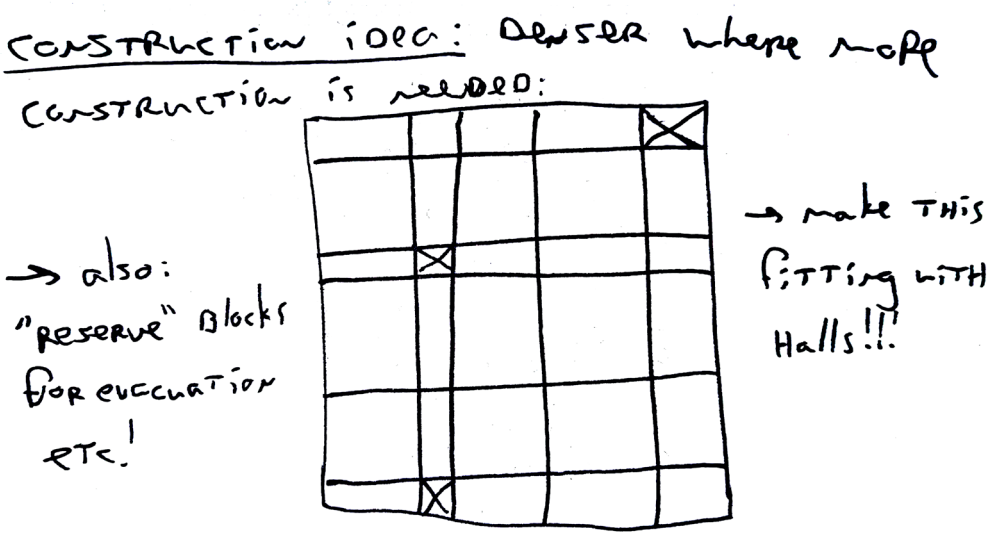


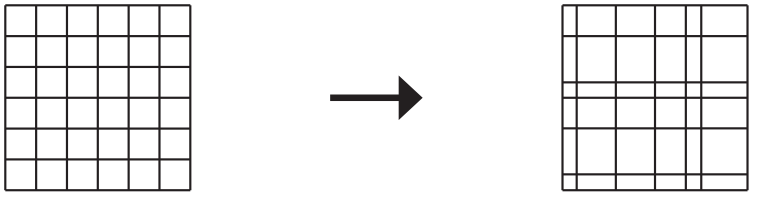


SUPERSTRUCTURE + BLOCKS

8.14. (top)
Superstructure: rigid frame where blocks can be placed inside.

8.15. (bottom)
Three dimensional grid overview.





Initial idea of rigid three-dimensional grid as superstructure.

Shift gridlines to fit with placement of halls and shafts.

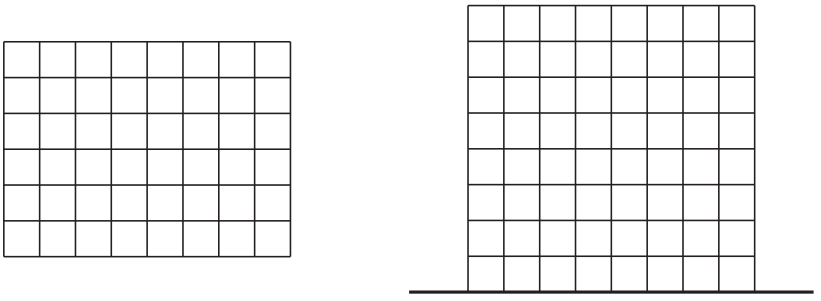
8.16. (top)
Sketch of superstructure grid.

8.17. (bottom)
Scheme explaining the shifting of gridlines to fit with the placement of halls and shafts.

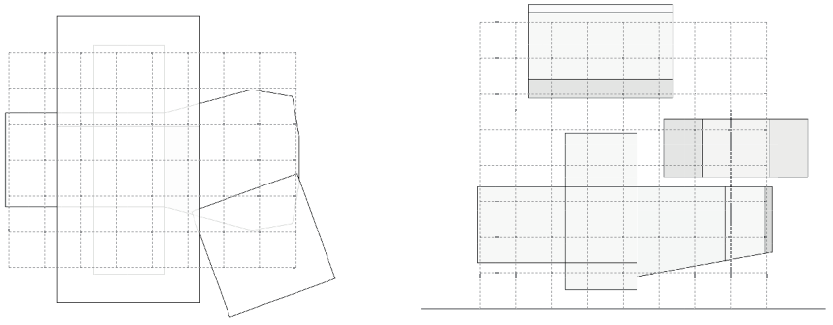
PLAN
(HORIZONTAL GRID)

ELEVATION
(VERTICAL GRID)

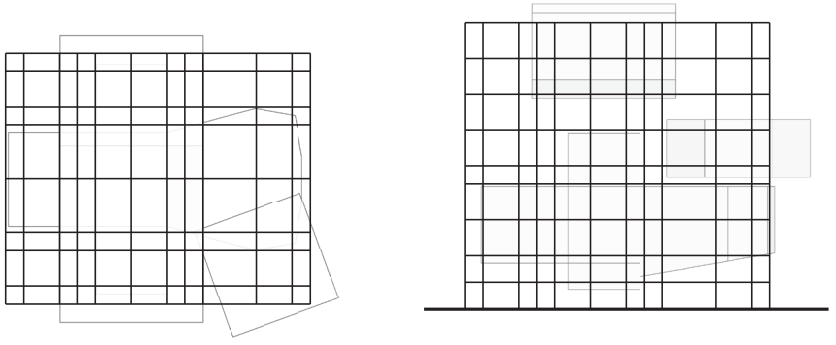
Starting point: a rigid three-dimensional grid structure of 8 x 8 x 8 meters.



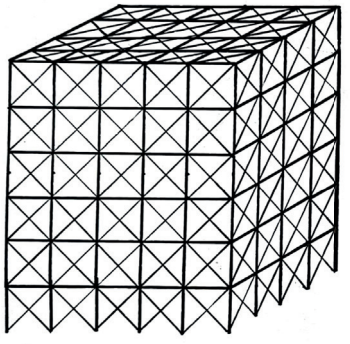
The grid is superimposed on the fixed position of the three concert halls.



Gridlines are shifted and / or multiplied to accommodate for the halls: larger spans where open spaces are needed, denser column placement where more construction is needed.

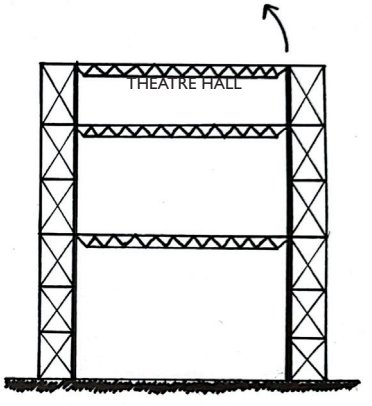


8.18.
Process of shifting the gridlines of the frame.

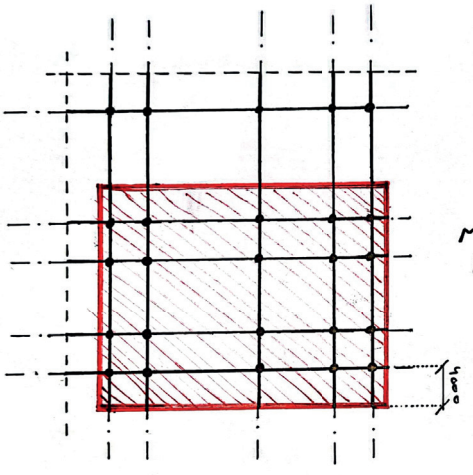


Bracing all around, so that the outer perimeter acts as an exoskeleton, similar to Centre Pompidou.

Larger column because of bigger load (more floor area).



Instead of a point load on a truss, several trusses above each other.



Jazz hall in line with grid instead of angular displacement.

8.19. (top, left)
Sketch of bracing all around the frame.

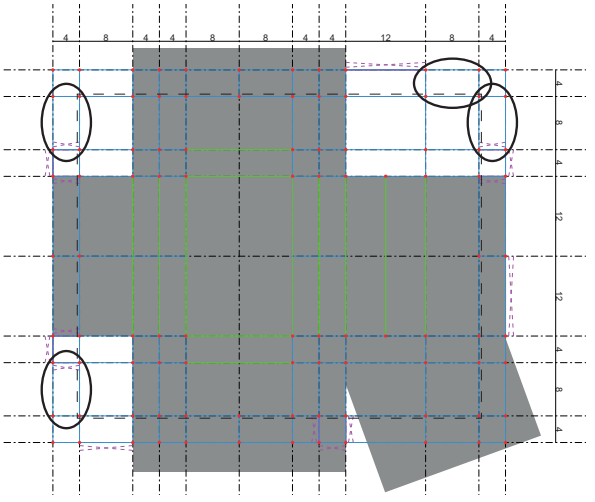
8.20. (top, right)
Use of truss inside to allow for large spans.

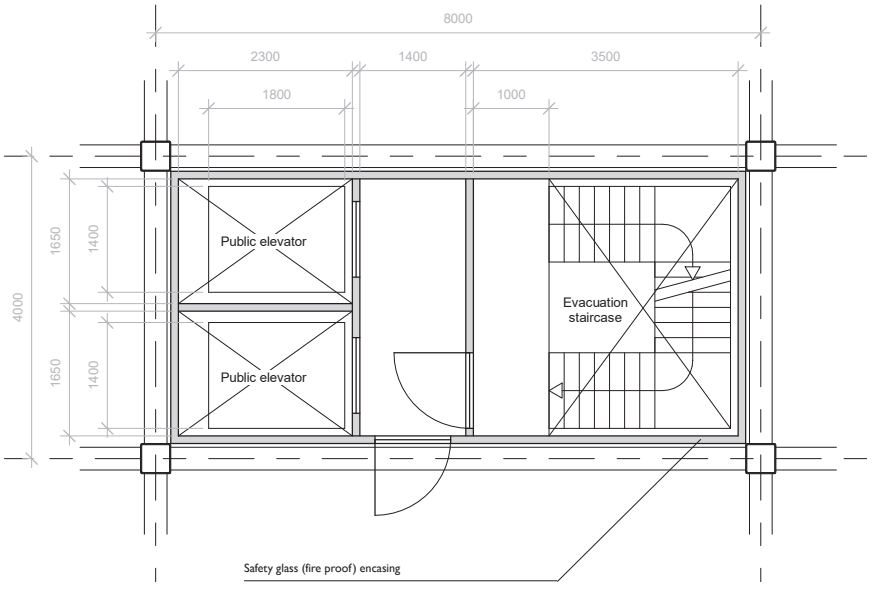
8.21. (bottom)
Jazz hall orthogonal with grid.

SHAFTS

WHERE TO PLACE

Gray area is where the vertical continuation is blocked by at least one of the concert halls. In other words: a shaft cannot be placed there. Circeled spaces are possible locations for a shaft.

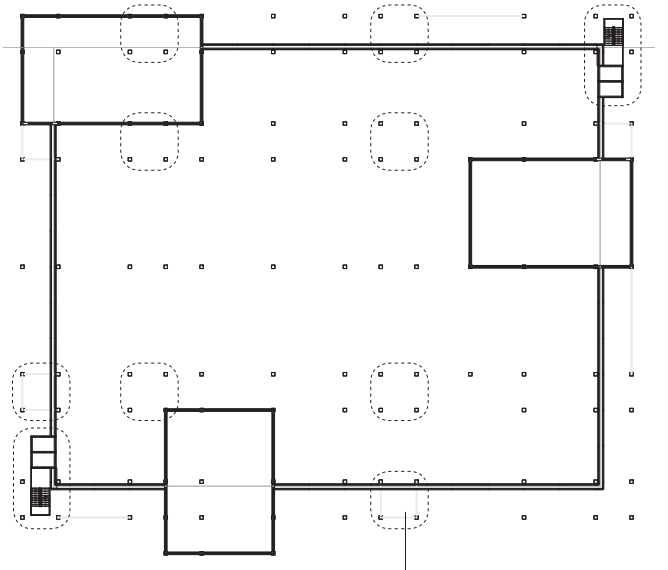




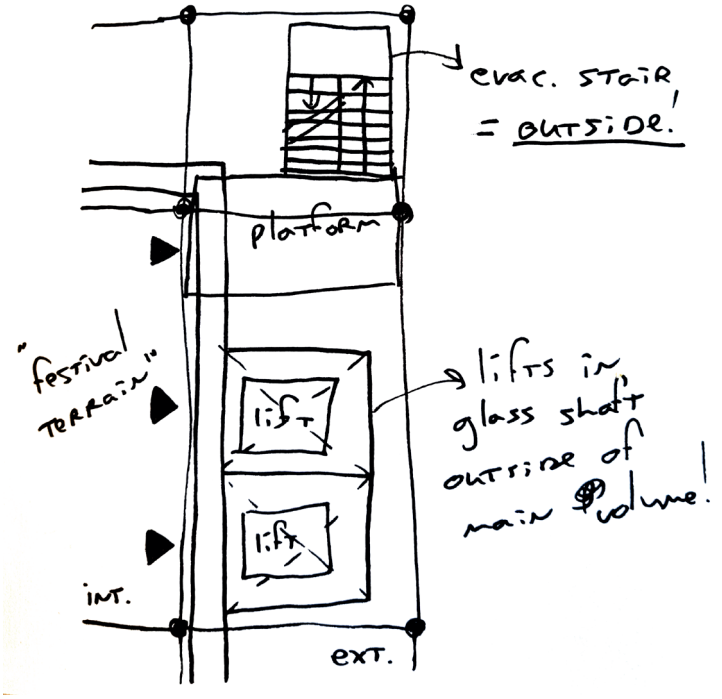
8.22. (top)
Overview of possible locations for shafts.

8.23. (bottom)
Draft detailed drawing of shaft layout.

Scale
1:100



Potential spaces for shafts (installations, plumbing, electricity, etc.), visible like Centre Pompidou.



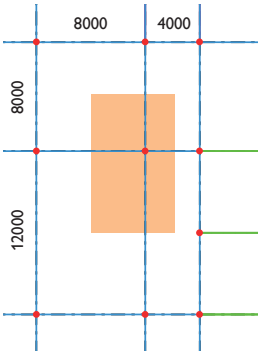
8.24. (top)
More elaborate possible placement of shafts: two large shafts on the outside for lifts and evacuation), multiple shafts on the inside for installations and plumbing etc.

8.25. (bottom)
Sketch of new shaft layout.

CALCULATIONS

COLUMN

To determine the dimensions of the columns that are needed, at first the max. load for one column has to be determined:



The largest floor area for one column is shown above, marked in orange. This is a floor area of (4,0 + 2,0) * (6,0 + 4,0) = **60,0 m²**.

Concert halls, theatres and large public structures with large amount of people have to comply with the most strict safety requirements, meaning that the max live load **q_l = 5,0 kN/m²**.

The dead load of the floor requires some guessing, because the type and dimensions of the floors has not been determined yet:
For the construction, a load of 1,0 kN/m² is taken (light-weight wooden floors).
The floor finishing will have a load of 0,5 kN/m².
The installations and other equipment together will have a load of 0,5 kN/m².
Together the dead load of the floor will be **q_d = 2,0 kN/m²**.

The total load will be: $q_l + q_d$ = 5,0 + 2,0 = **7,0 kN/m²**.

For 60,0 m², this means that the max. load for one floor will be: 7,0 * 60,0 =
420,0 kN.

The dead load of the construction (simplified) consists of the weight of the column + the weight of the beams. Using a rule of thumb to determine the type of column and beams, the following steel profiles will (probably) be used:

Column:
profile: CHS 406.4 - 10, weight: 97,8 kg/m (=0,98 kN/m), length: 8,0 meter.
dead load of column = 0,98 * 8,0 = 7,8 kN.

Beam:
profile: HEB 400, weight: 155,0 kg/m (= 1,55 kN/m), length: 6,0, 4,0, 4,0 and 2,0 meter (see scheme above).
dead load of beam = 1,55 * 6,0 + 1,55 * 4,0 + 1,55 * 4,0 + 1,55 * 2,0 = 24,8 kN.

In total the construction itself will have a load of **32,6 kN**.

This means that the grand total for one column for one floor will be a maximum of:
420,0 + 32,6 = **452,6 kN**.

With a general floor height of the "festival terrain" of 4,0 meter, the building would have a total of 16 floors. However, since there as a lot of open space (both the void of the festival terrain and the large ceiling heights in the concert halls) it is estimated that about 50% of the potential floor area will be actual floor. For the construction this means that the max. load for one column is only **8 floors** (50% of the potential 16 floors).

The total force $F_{c;d}$ of the load of all floors on one column can be calculated as follows: 452,6 kN / floor * 8 floors = 3.620,8 kN.

To get an approximation of which column type to use, the following formula can be used:

$A = F_{c;d} / 355$

with A being the area of the section of a column type in mm², $F_{c;d}$ the max. total force in N and 355 a number for the type of steel that will be used (choice between S235- and S355-grade steel).

This gives us:

A = 3.620.800,0 / 355 = 10,199,4 mm²

A round column type which has an area larger than calculated above is:
CHS 355.6 - 10 with A = 10.857,0 mm².

More accurate is to calculate the quadratic moment of area I_z for the column, this is done using the following formula:

$I_z = (F_{c;d} * l^2) / (\pi^2 * E)$

$F_{c;d}$ = 3.620.800,0 N
l = 8000 mm
E = 210.000 N/mm^2

$I_z = (3.620.800,0 * 8000^2) / (\pi^2 * 210.000)$
$I_z = 11.180,6 * 10^4$ mm^4

A round column type which has a quadratic moment of area that is suitable for this column is a: **CHS 323.9 - 10**, with $I_z = 12.158,0 * 10^4$ mm^4.

However, with a maximum column height of 8000 mm, buckling becomes a serious problem. Therefore, the following formula is used to calculate the maximum force that is allowed before the column will buckle:

$F_{cr} = (\pi^2 * E * I) / l^2$

E = 210.000 N/mm^2
$I = I_z = 12.158,0 * 10^4$ mm^4
l = 8000 mm

$F_{cr} = (\pi^2 * 210.000 * 12.158,0 * 10^4) / 8000^2$
F_{cr} = 3.937.324,4 N

For safety, the Unity Check (U.C.) is applied, this means that the maximum force under which the column will buckle should be 5 times as large as the maximum force the column will actually have:

U.C. = 5 * $F_{c;d}$ / F_{cr}
$F_{c;d}$ = 3.620.800,0 N
F_{cr} = 3.937.324,4 N

U.C. = 5 * 3.620.800,0 / 3.937.324,4
U.C. = 4,60 > 1

This means the needed I_z should be 4,60 times as large as the I_z of the current profile, meaning the following I_z is needed:

$I_{z;needed} = I_{z;old} * U.C.$

$I_{z;needed} = 12.158,0 * 10^4 * 4,60$
$I_{z;needed} = 55.926,8 * 10^4$ mm^4

A round column type which has a quadratic moment of area that is safe for buckling in this situation is a: **CHS 508.0 - 12.5** with $I_z = 59.755,0 * 10^4$ mm^4.

The reason for choosing a round column instead of a square column was purely architectural: a round column does not have any edges and therefore disappears more in the space. However, because of buckling, round columns with a diameter of 508 mm are needed, which is quite large. To reduce the (perceived) size of the column and let go of the ambition to use round columns for aesthetic purposes, a square column type will be used.

A square column type that is sufficient is:
SHS-HF 400x400 - 16 with $I_z = 59.344 * 10^4$ mm^4.

This column will take up the same amount of area but it is more practical because of its straight sides.

BEAM
For now, a general rule of thumb for determining the dimensions for a beam will be used:

h = l / 25

The maximum length of a beam is 12.000 mm, meaning:

h = 12.000 / 25
h = 480 mm.

Because at half of the spaces there will be no floors and because the majority of spans is smaller than 12.000 mm, a slightly smaller beam profile is chosen: **HEB 400**.

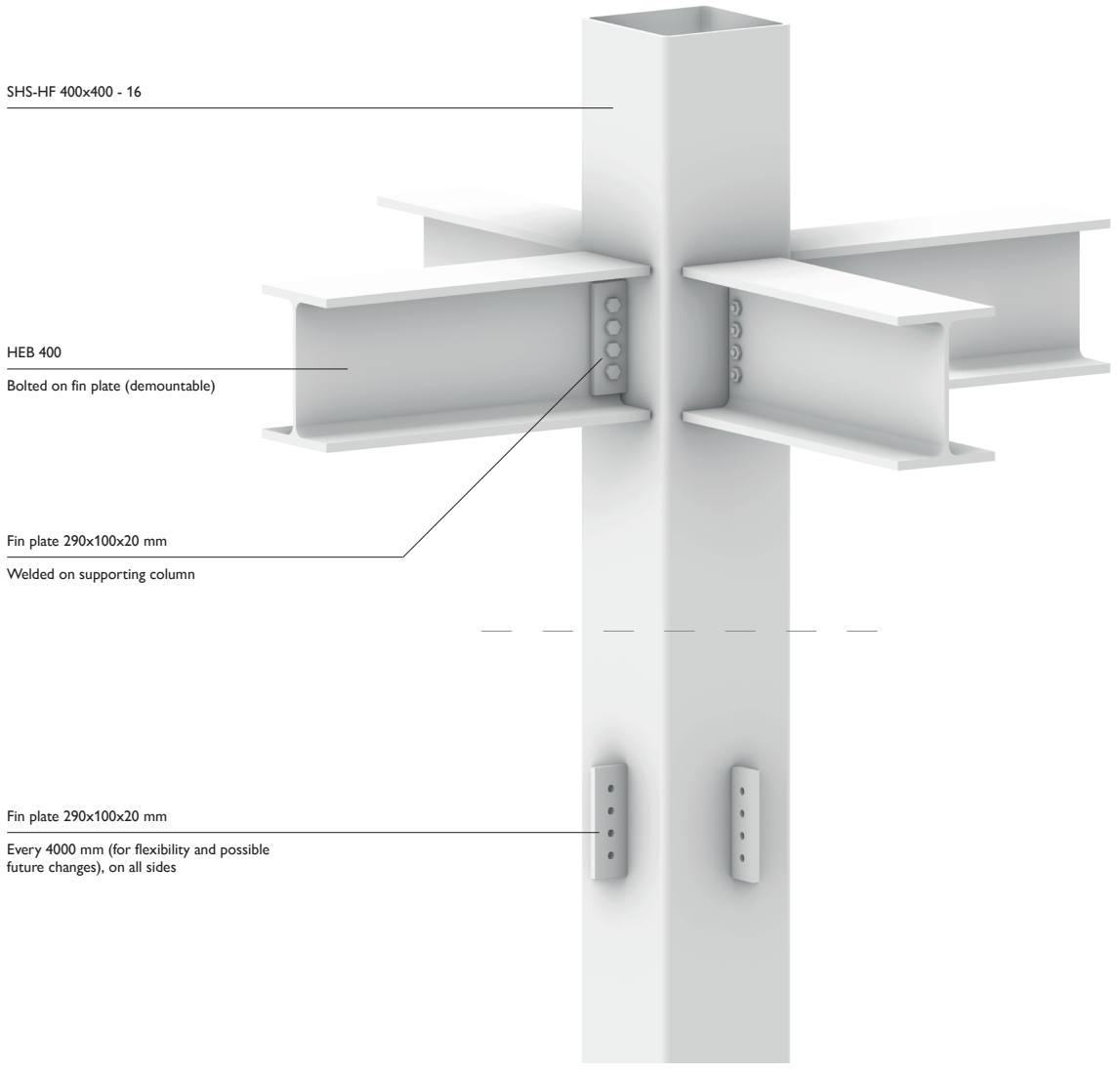
TRUSS
For now, a general rule of thumb for determining the dimensions for a truss will be used:

h = l / 15

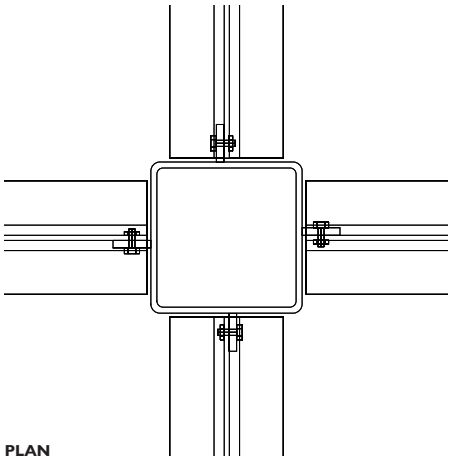
The maximum length of a truss is 24.000 mm, meaning:

h = 24.000 / 15
h = 1.600 mm.

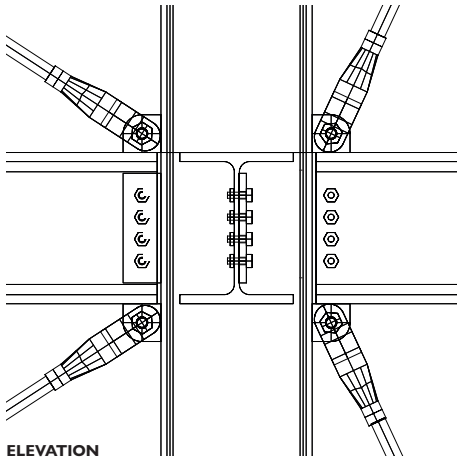
CONSTRUCTION JOINTS



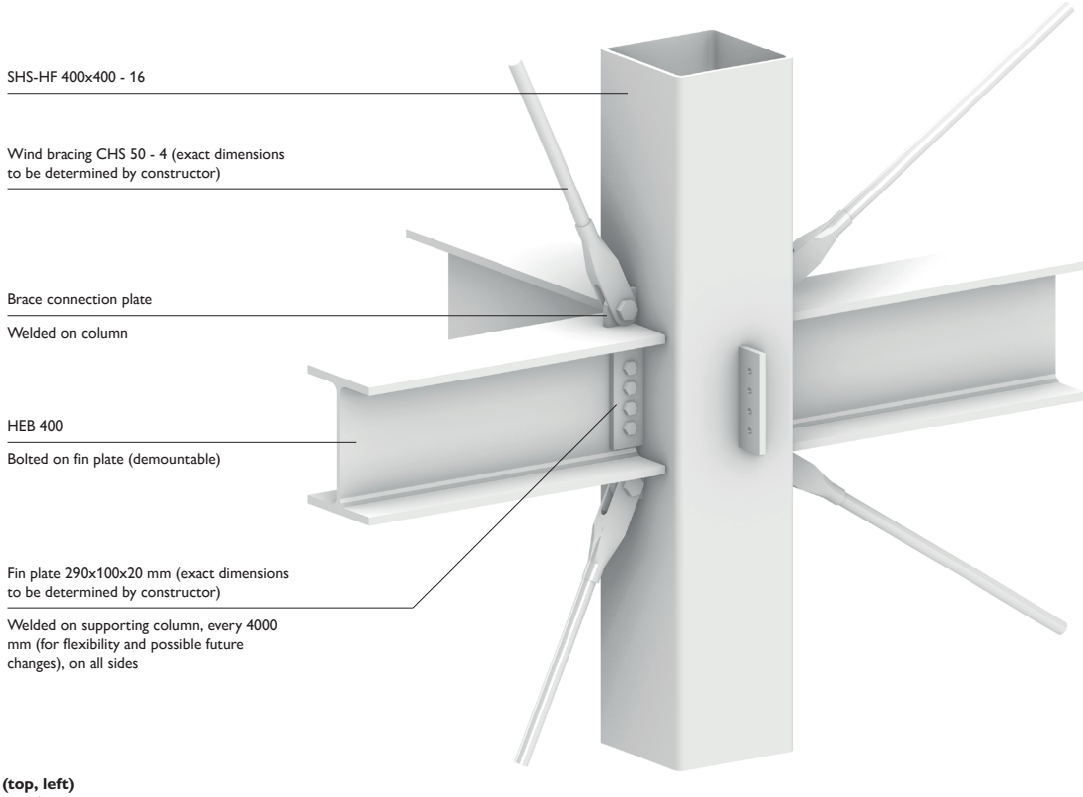
8.26.
First visualisation of a general construction joint.



PLAN



ELEVATION



8.27. (top, left)
Plan view of general construction joint.

8.28. (top, right)
Elevation view of general construction joint.

8.29. (bottom)
Three dimensional visualisation of general construction joint.

Scale
1:20

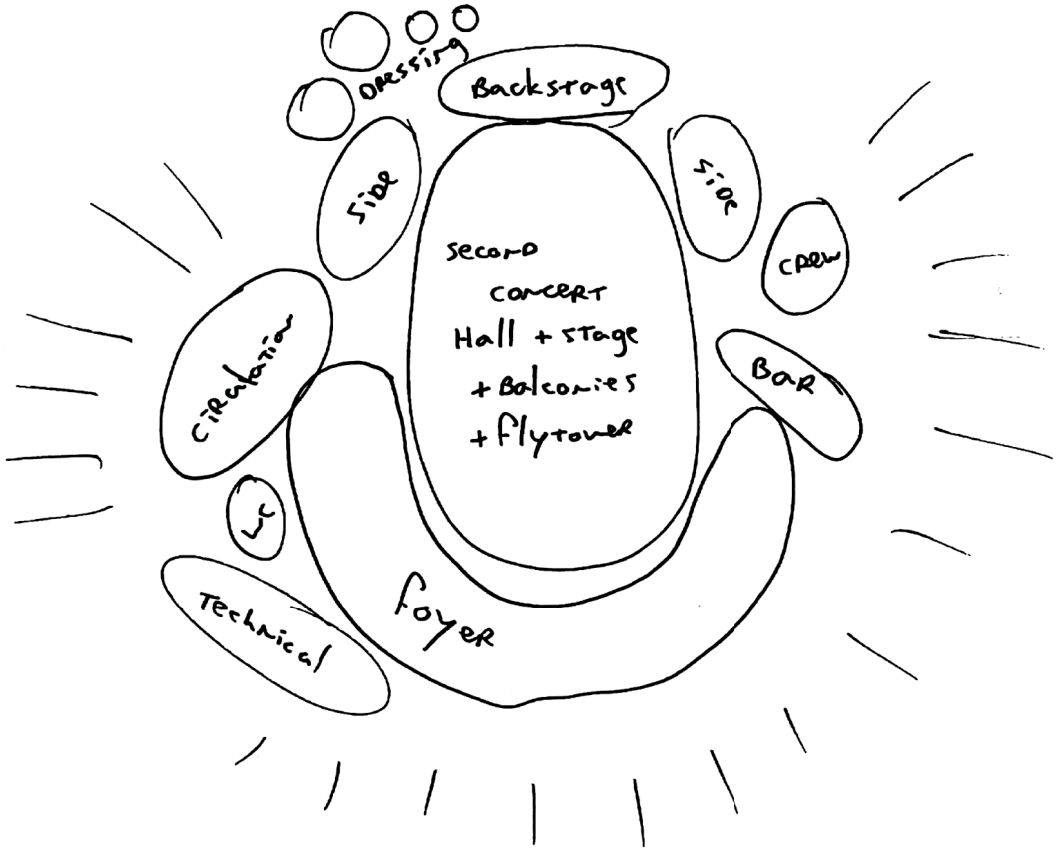
9. DESIGN JOURNAL

PROGRAM SKETCHES: BUBBLE DIAGRAMS



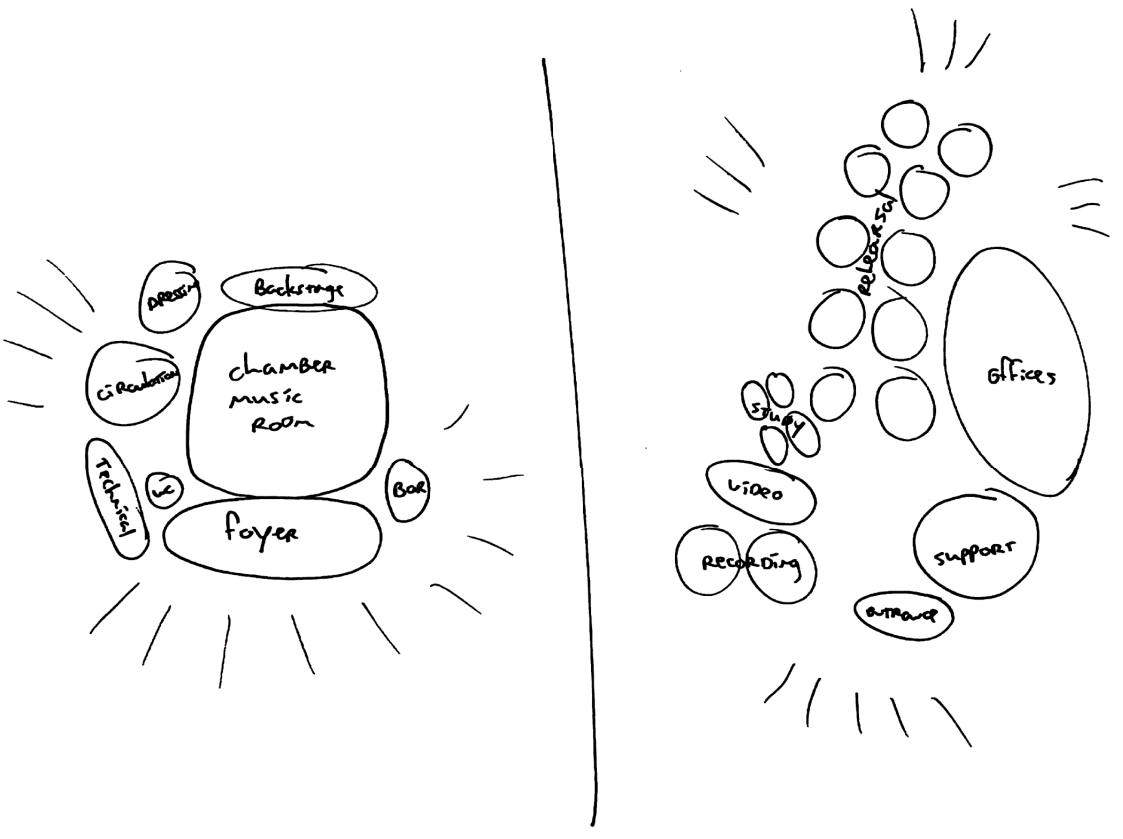
MAIN CONCERT HALL
Bubble diagram sketch showing the main concert hall with service program around it.

9.01.
Main concert hall floor - program sketch.



THEATRE HALL
Bubble diagram sketch showing the theatre hall with service program around it.

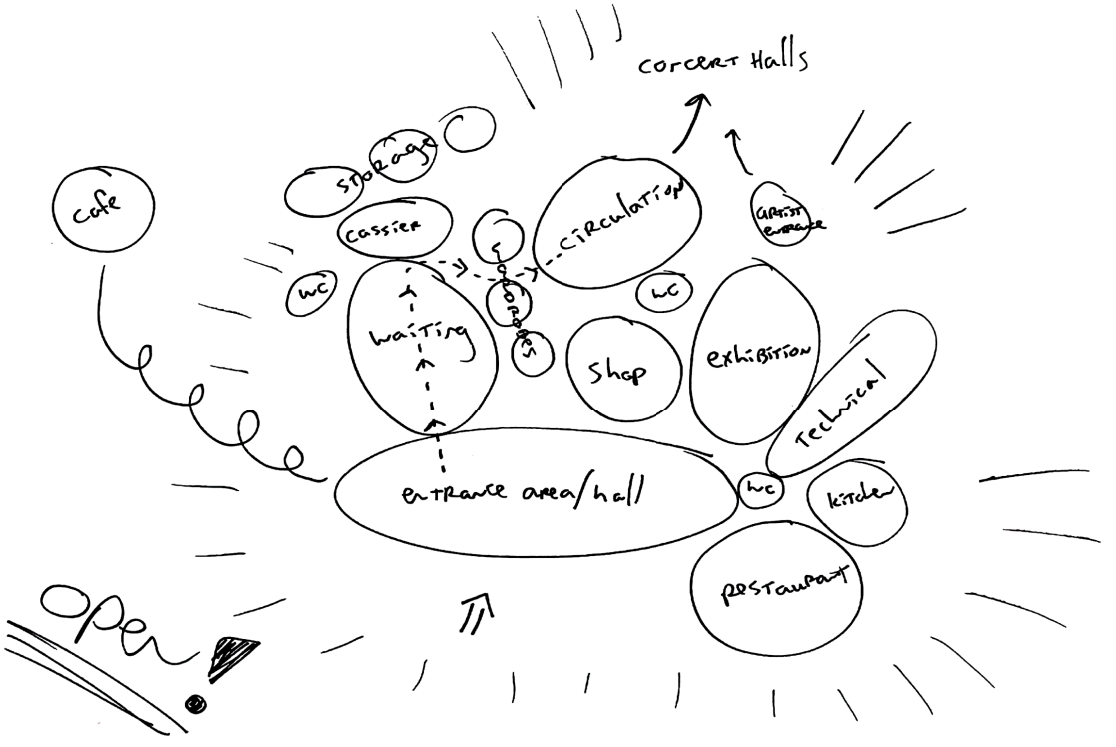
9.02.
Theatre hall floor - program sketch.



CHAMBER MUSIC ROOM & RECORDING STUDIO'S

Bubble diagram sketch showing the chamber music room and the recording studio's with service program around it.

9.03.
Chamber music hall and recording studio's floor - program sketch.

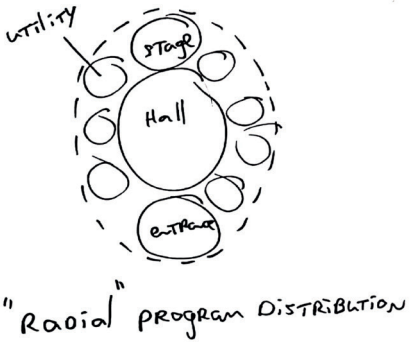


PUBLIC / ENTRANCE (GROUND FLOOR)
Bubble diagram sketch showing the entrance spaces with service program around it.

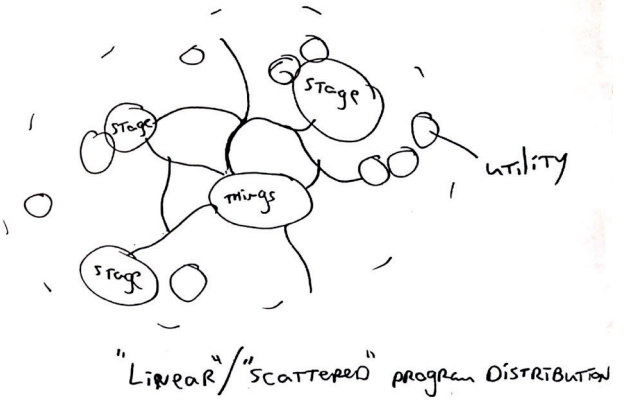
9.04.
Entrance floor - program sketch.

DESIGN SKETCHES: CHRONOLOGICAL ORDER

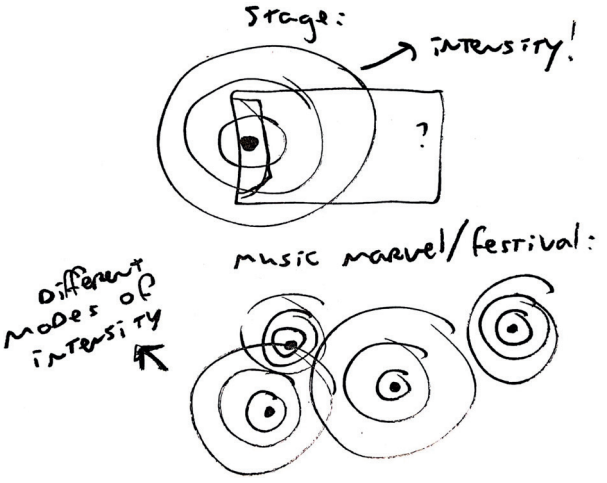
COMPACT CONCERT HALL:



FESTIVAL:

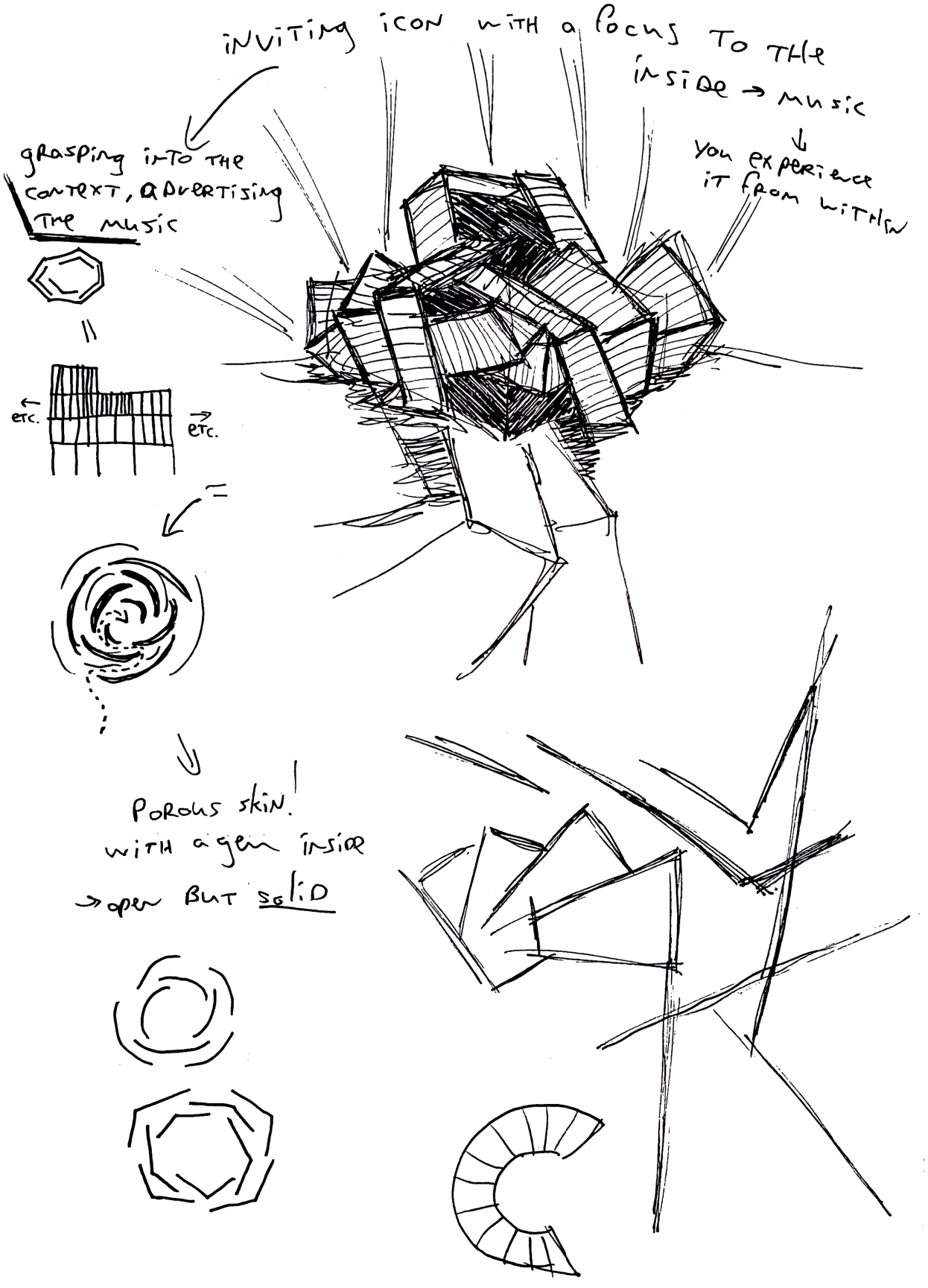


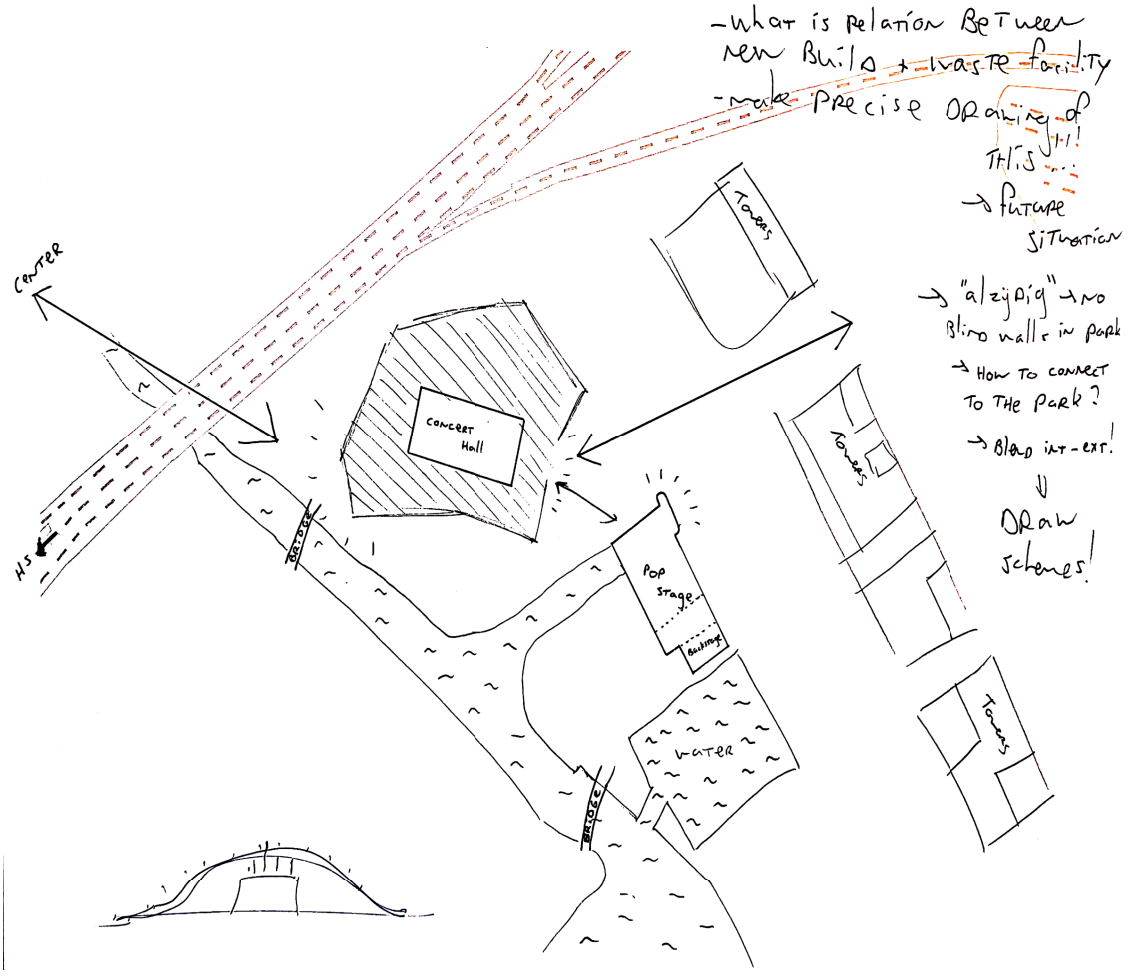
COMBINE INTO: A PERMANENT MUSIC VENUE THAT FEELS LIKE A FESTIVAL



9.05.
FESTIVAL IDEA
17-11-2021

9.06.
FIRST SKETCH (RIGHT PAGE)
11-11-2021


inviting icon with a focus to the inside → music
you experience it from within
grasping into the context, advertising the music
etc.
etc.
Porous skin! with a gem inside
→ open but solid



9.07.
IDEAS ON LOCATION
02-12-2021

9.08.
FORM & IDEAS (RIGHT PAGE)
13-12-2021

	Building volumes	expression	???
□	pics of buildings	facade details?	
△	" "	" "	
○			
⬡			
etc.			

Music Marvel ideas:

- look at scores → form of notes?
- use MIRRORS (Molenvet!) → why? → relate
- MONOLITH + Big WINDOWS
  - ↳ + incisions → inside cladded with MIRRORS
- small site → VERTICALITY
  - → SHARPS  → "THE CROWN"

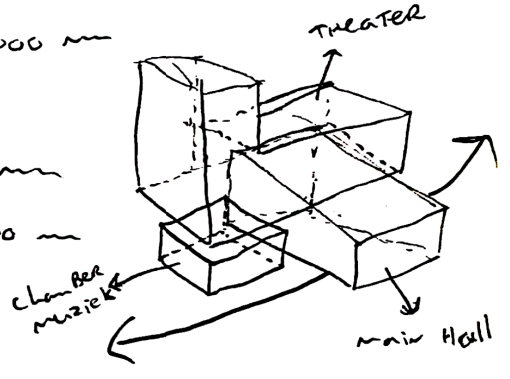
100 m. = 1.000 mm

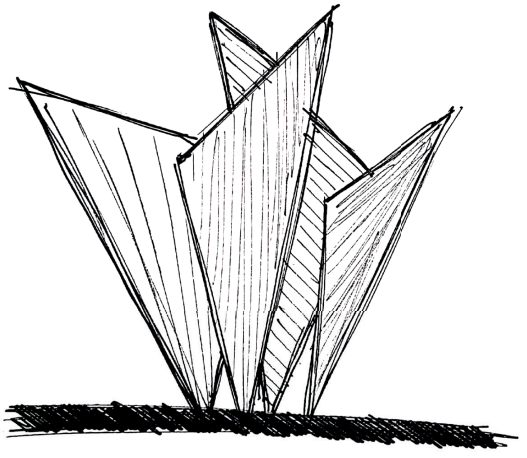
100.000 mm = 1.000 mm

100 m = 100 mm

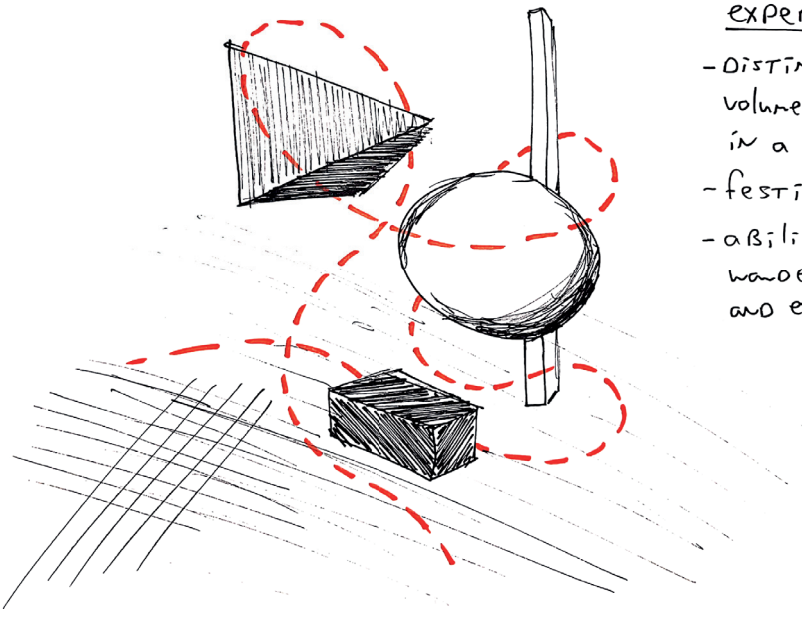
100.000 mm = 100 m

1000 : 1



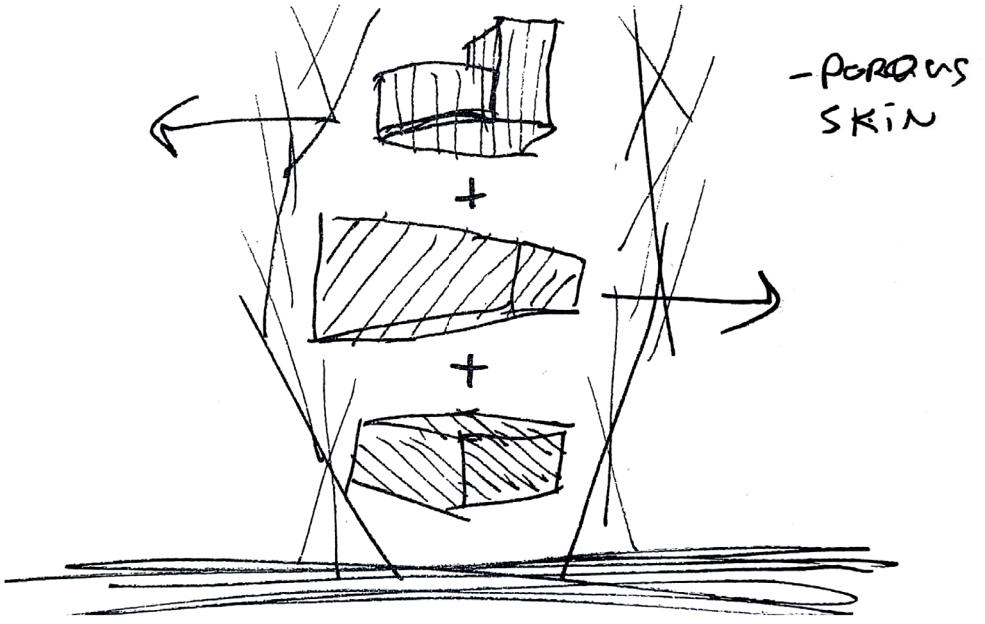


- Elegance
- reference to a crown?
- VERTICALITY
- porous/open → especially the plinth → therefore: smaller footprint!
- patchwork → fabric
- repetition in materialization

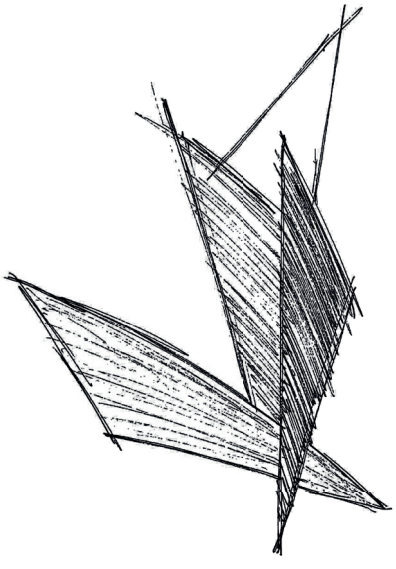


- Resembles the experience
- distinct volumes floating in a void
- festival-like
- ability to wander around and explore

9.09.
APPEARANCE & CONCEPT
22-12-2021

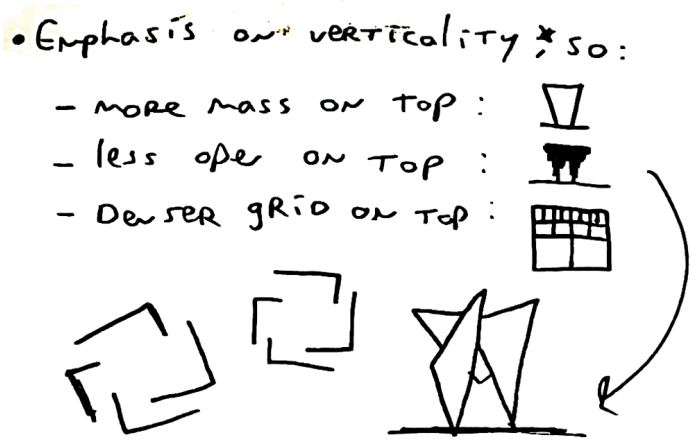


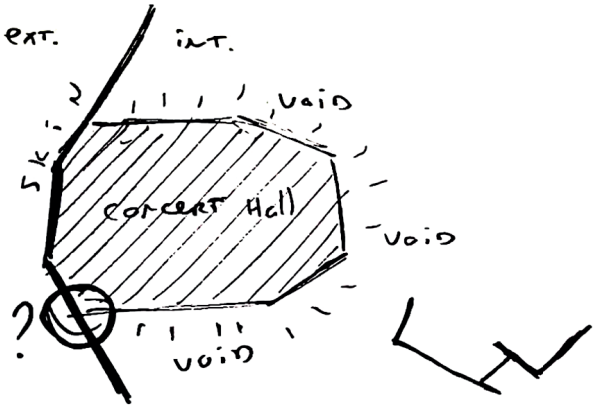
9.10.
STACKING HALLS (TOP)
22-12-2021

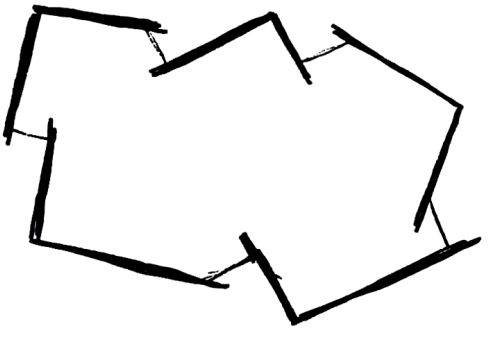


9.11.
TRIANGLES
10-02-2020

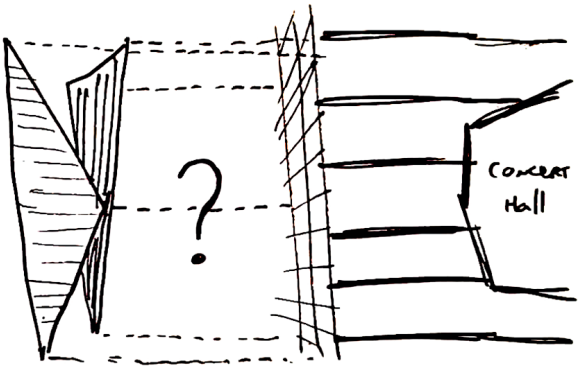
Sketch of a composition of triangles made almost two years ago, showing fascination for abstract forms.

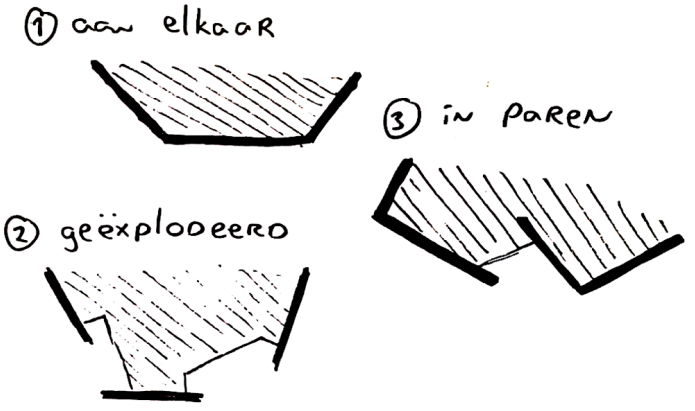


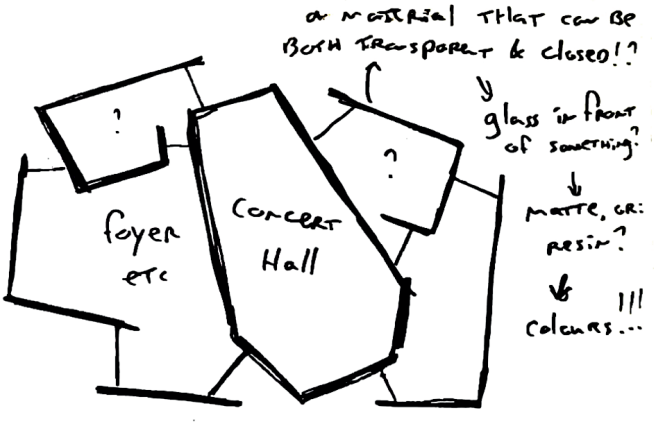




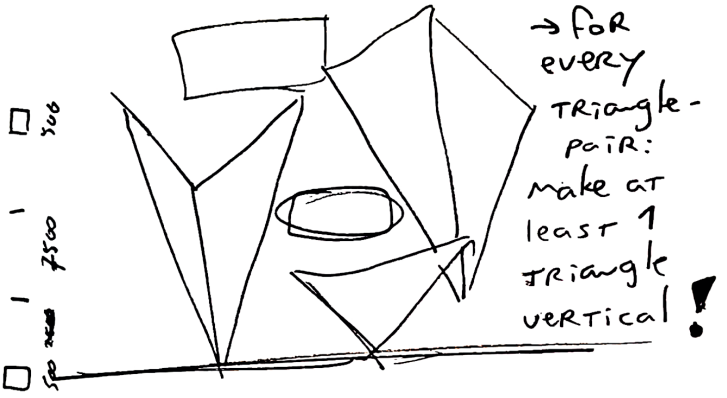
9.12.
PUZZLE WITH FACADE
02-01-2022

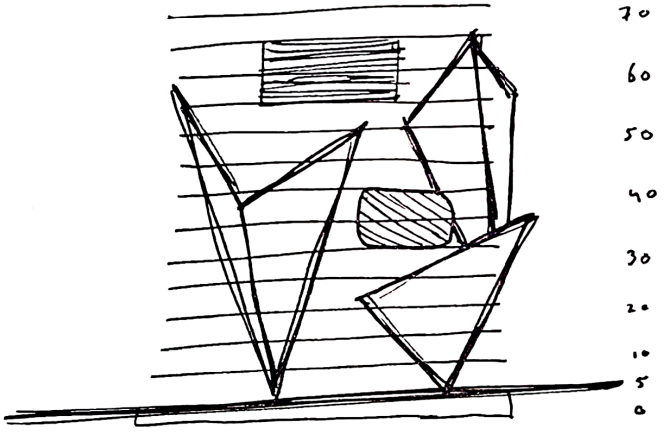


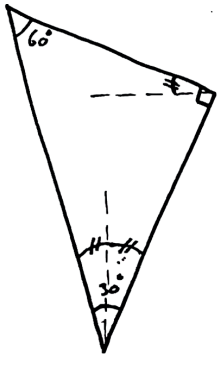




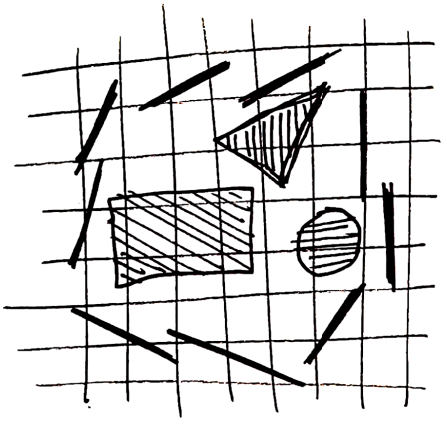
9.13.
FACADE OPTIONS
02-01-2022

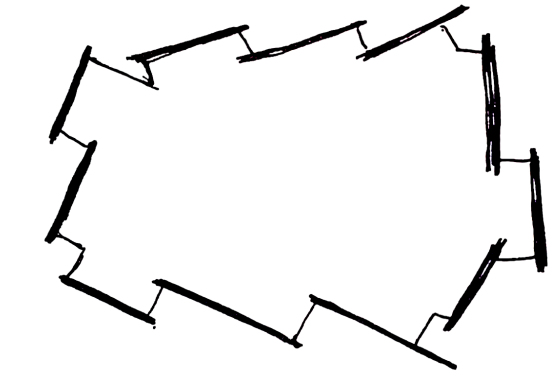


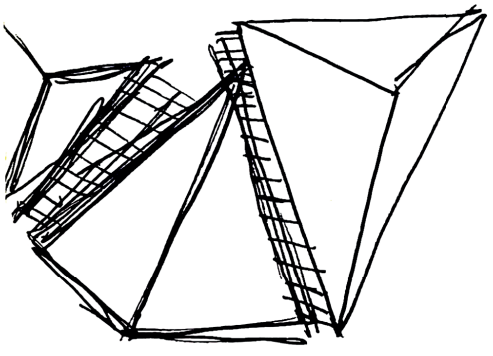




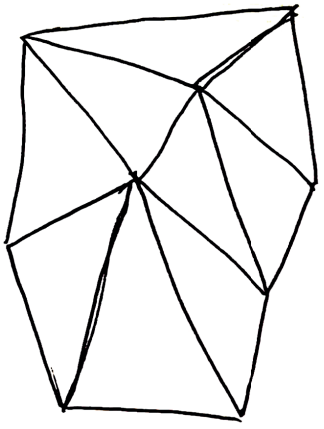
9.14.
TRIANGLES - TESTING
08-01-2022

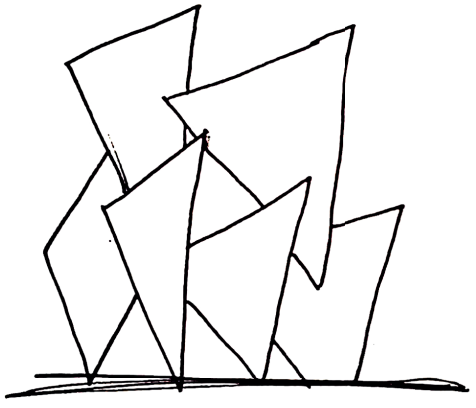


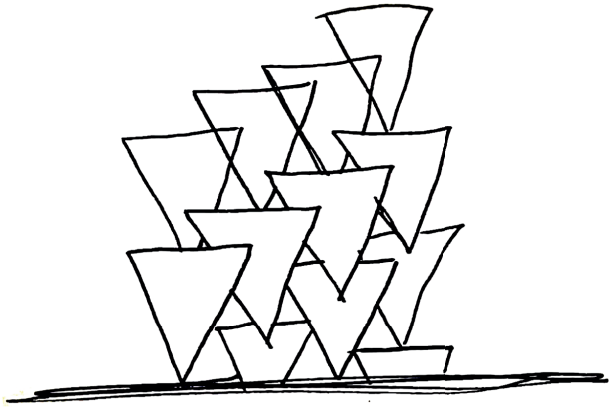




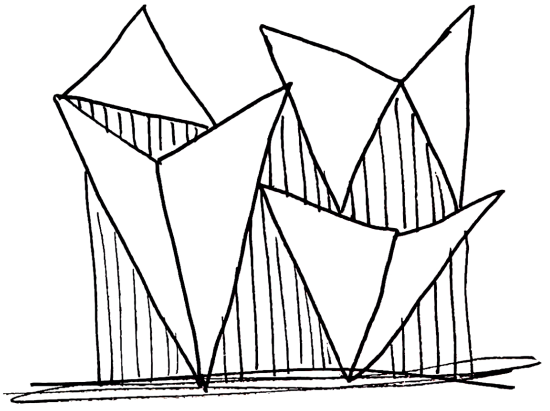
9.15.
LAYOUT & FACADE
08-01-2022

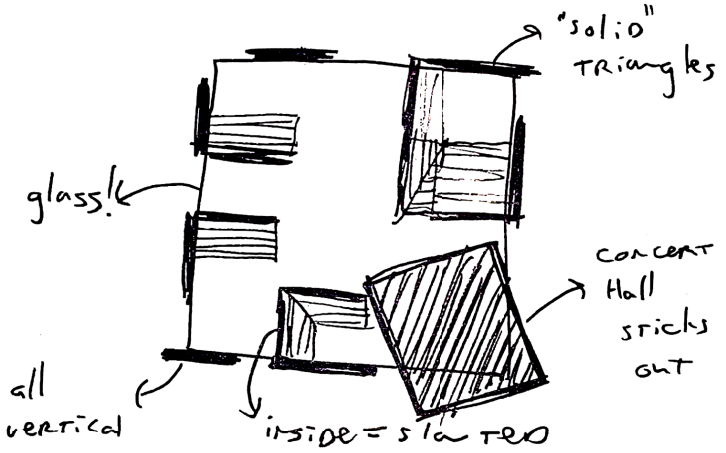


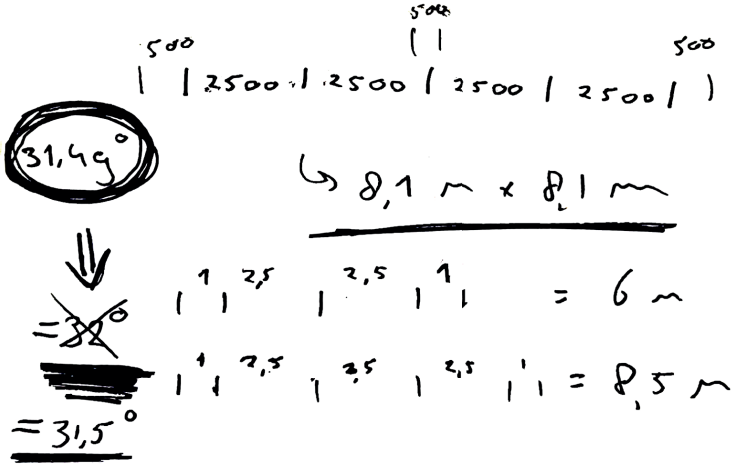




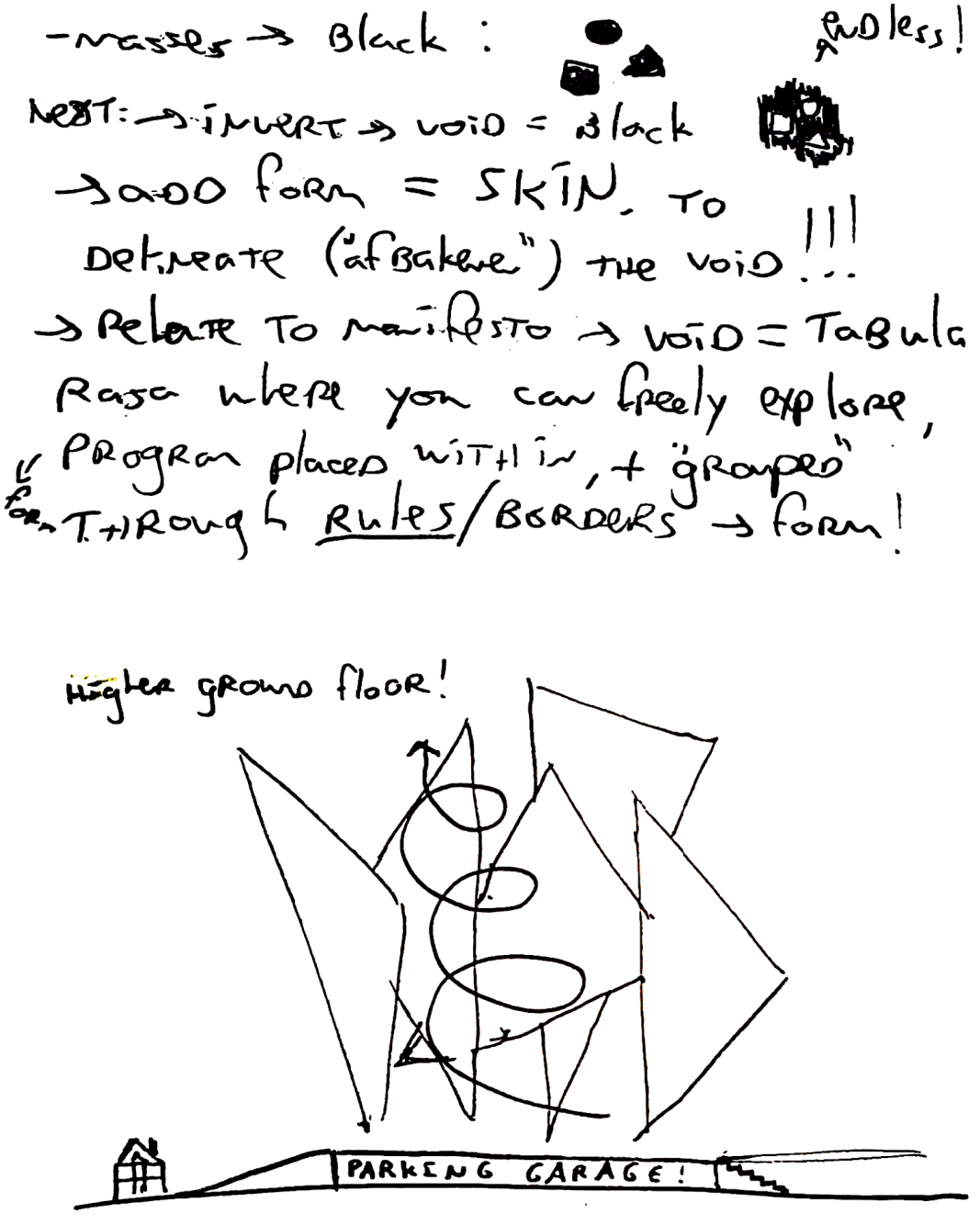
9.16.
MORE TRIANGLE OPTIONS
08-01-2022





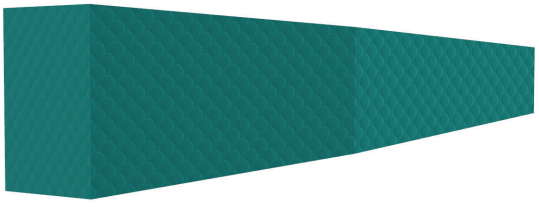


9.17.
MORE FACADE & GRID
08-01-2022

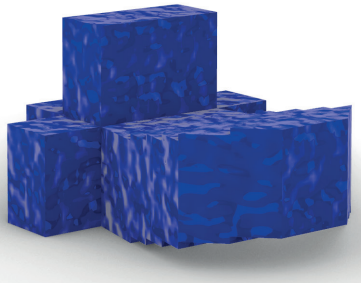


9.18.
VOID IDEA & ELEVATED GROUND FLOOR
08-01-2022

CONCEPTUALISATION

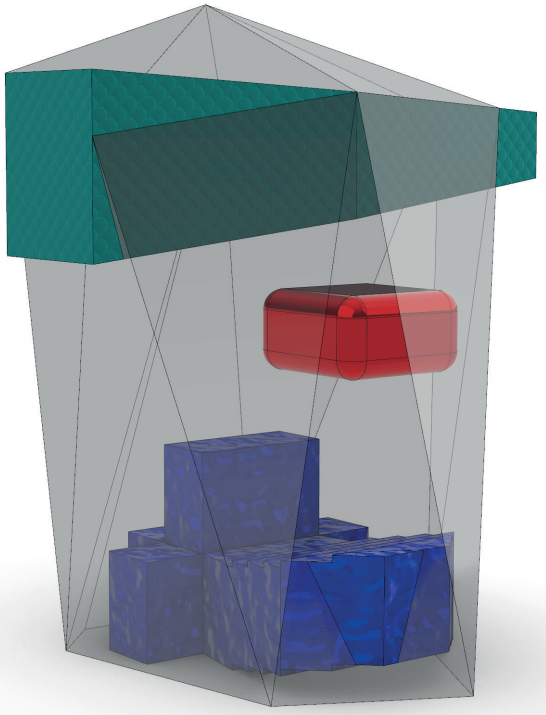






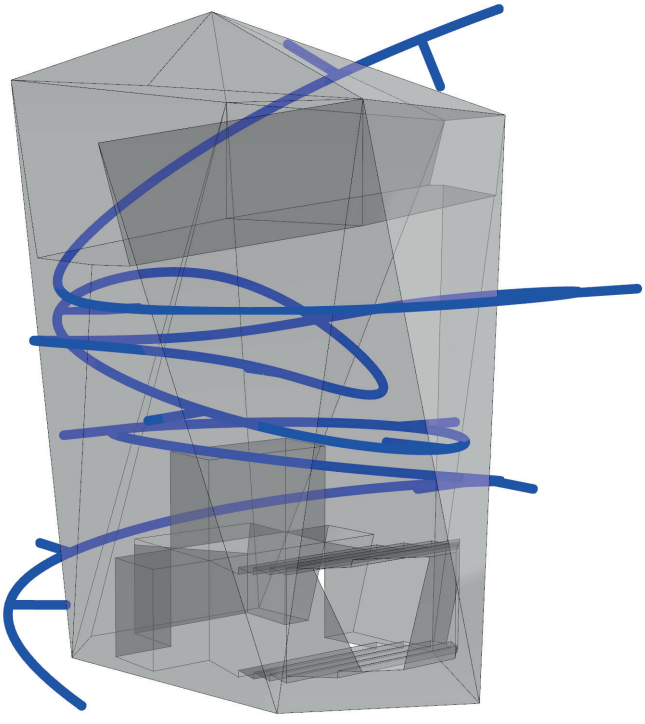
STACKED CONCERT HALLS

9.19.
Design concept: three stacked halls with distinct appearances.



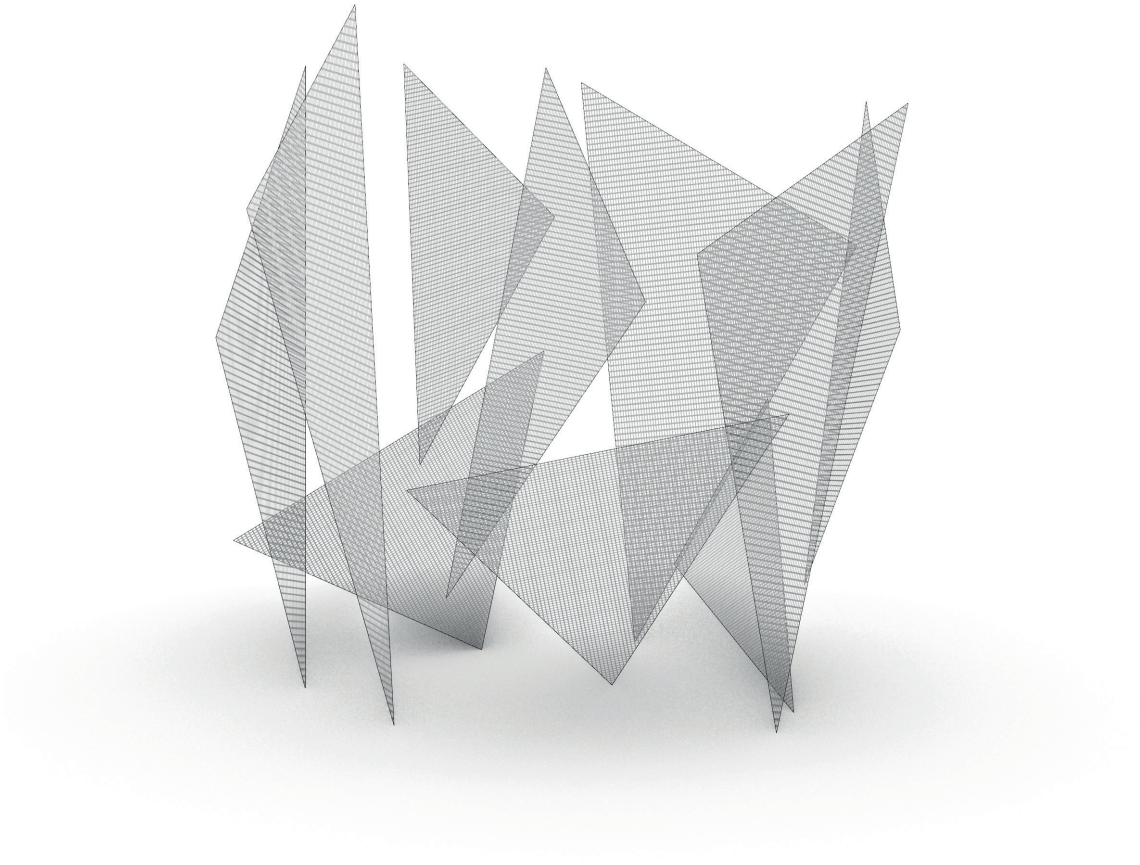
VOID = OTHER PROGRAM

9.20.
Design concept: void around halls for other program.



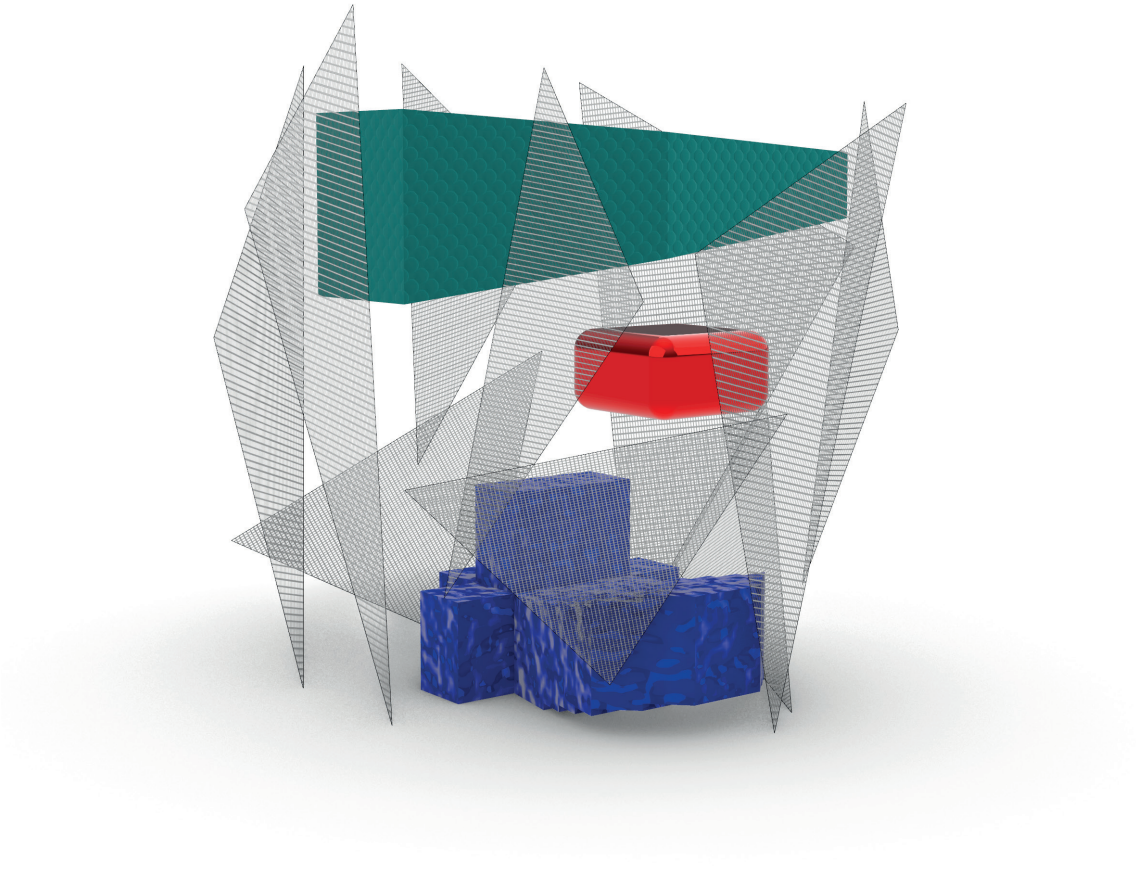
CIRCULATION THROUGH VOID: VERTICAL CITY

9.21.
Design concept: void used for circulation.



SKIN WRAPS AROUND

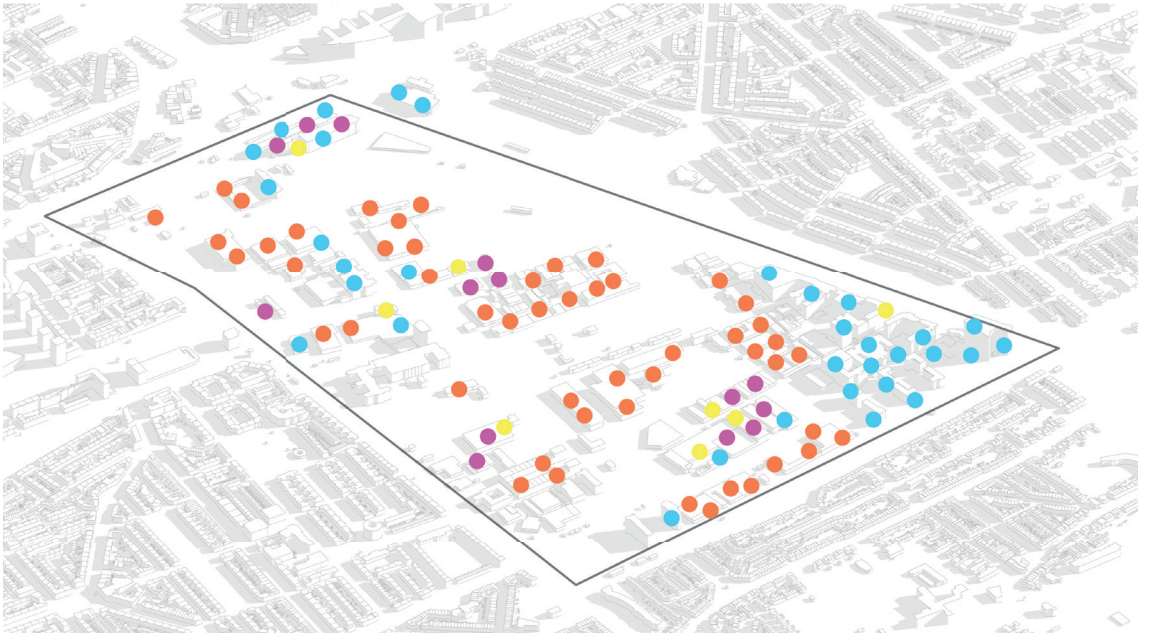
9.22.
Design concept: skin around masses and void, reacting to the surroundings through form.



POROUS SKIN + DISTINCT VOLUMES

9.23.
Design concept: skin will be transparent to show the masses.

MANIFESTO: BRAINSTORMING



MANIFESTO CONCEPT

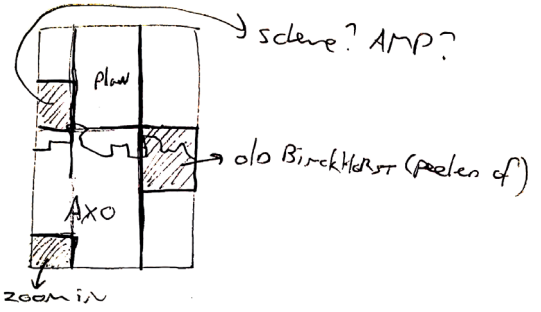
Binckhorst has a lot of potential because there are a lot of activities already present (liveliness). However, it is clogged, snowed under, noisy and chaotic due to the unplanned physical appearance of all the places where there is not necessarily any activity taking place (i.e. all the inbetween space), it is just junk.

In order to solve this, the Binckhorst needs to be structured by cleaning up the inbetween space and removing all the borders, by making incisions and doing interventions in order to amplify the city. By structurising and removing, this liveliness will become visible and interaction will start to happen.

The Binckhorst already is a collage, but the dust needs to be removed and it needs to be composed so that it can become an URBAN PLAYGROUND. Maybe by introducing a grid that allows for interaction, in order to blend functions.

9.24. (top)
First manifesto visualisation: taxonomy of different functions present in the Binckhorst.

9.25. (right page)
Some ideas and sketches on the manifesto.



manifesto: Not exactly a "Tabula Rasa" but a "Tabula" with some spots on it here and there → present as clean "Tabula", then the stuff on top, then the adding/organizing of form!

manifesto → grid → Name Axis: A-1, C-17, etc.
→ refer to this when making Taxonomy of existing situation!

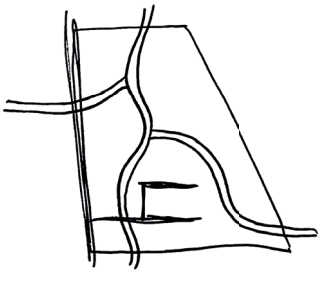
manifesto: Taxonomy in 2 ways:

- sort by function/colour code
- sort by form → or: size!

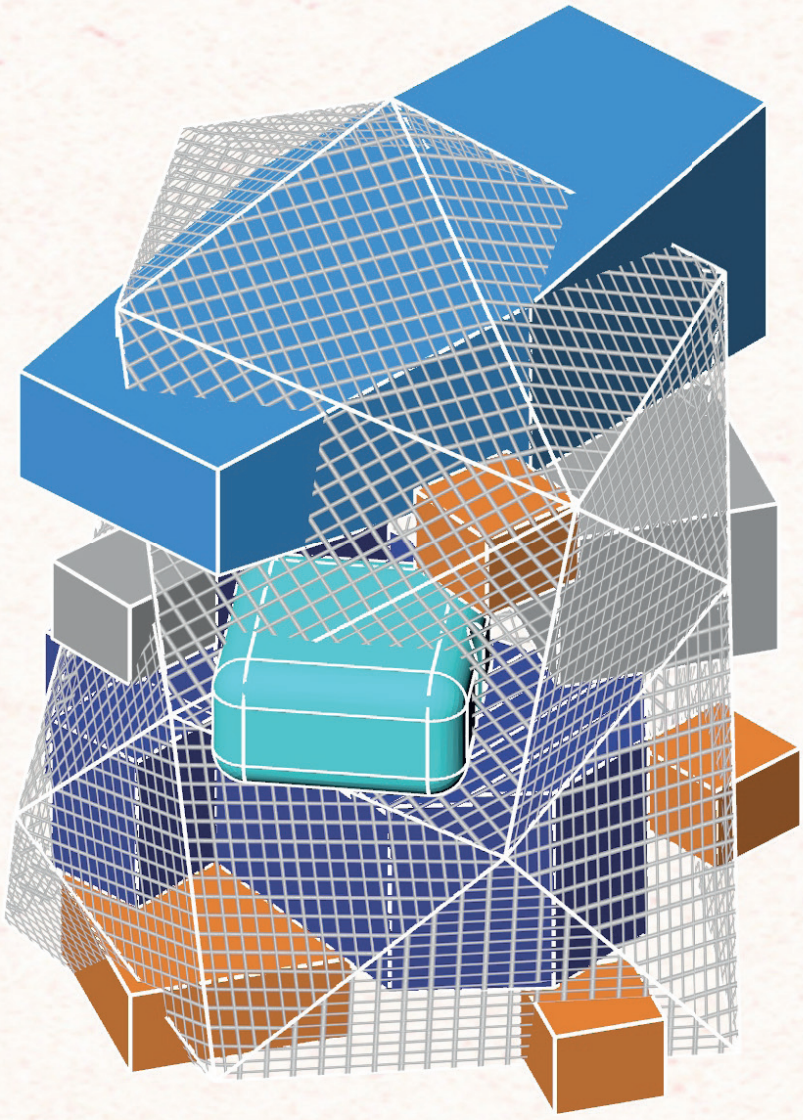
+ insert "FUN" program: music marvel and other public activities
replace/organize/cluster/stack
→ add funny roads, trees, people, Hot air Balloon, etc. → FESTIVAL!

manifesto: Birckhorst = island
→ = festival idea!

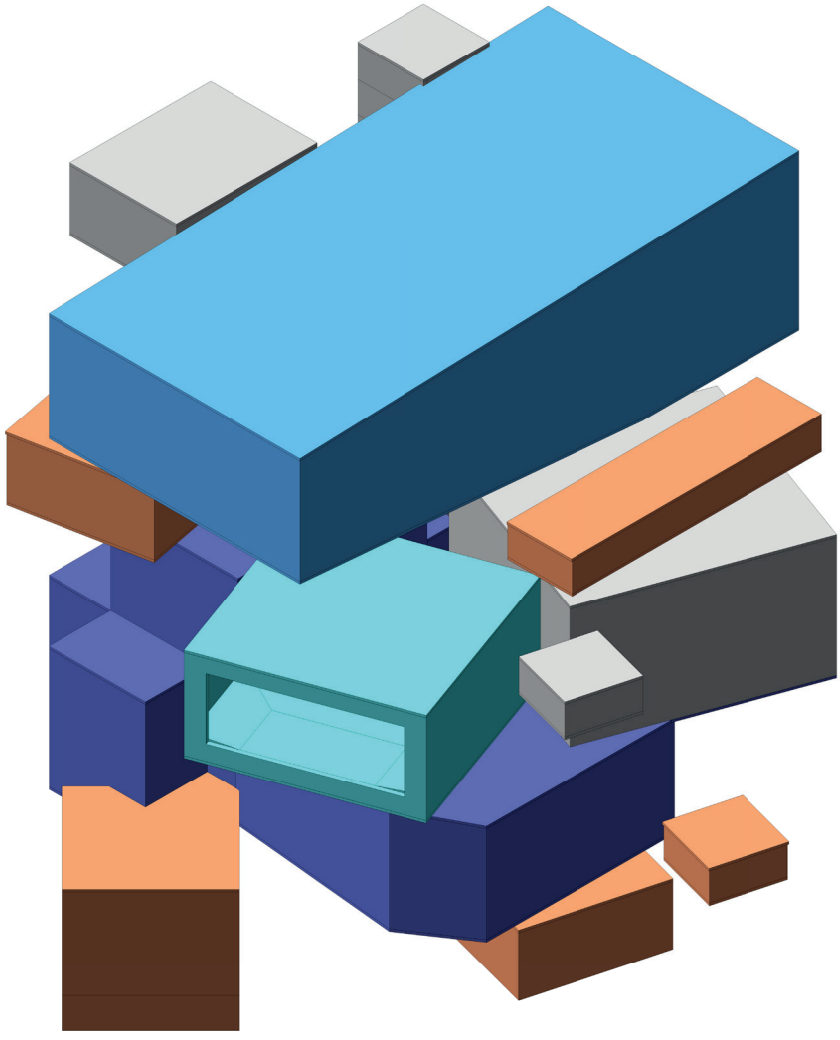
→ visualise in the axo:
"water" as border between Birckhorst and The Hague + Bridges!
↓
= entrances



VERTICAL FESTIVAL



9.26.
Clustered programmes in distinct volumes scattered around in a three-dimensional festival terrain.

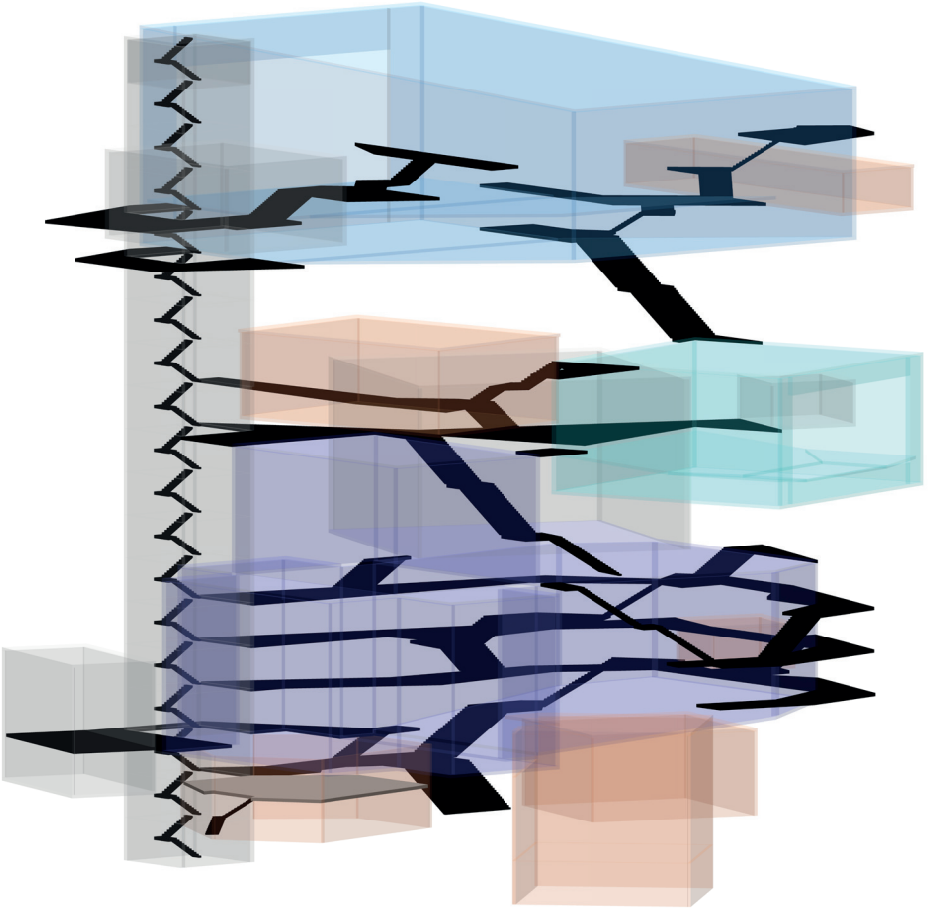


MUSIC MARVEL FESTIVAL

Directly related to the manifesto, everything that is not needed is removed, only the spaces relevant for the music venue are placed and amplified through form. The program is stacked in order to create the idea of a vertical village. All the space inbetween the masses is part of the festival, visitors are free to wander around and explore the venue.

9.27.
Axonometric view of the current masses, showing the concert halls (blue), public program (orange) and private program (for artists and services, gray).

ROUTING PRINCIPLE

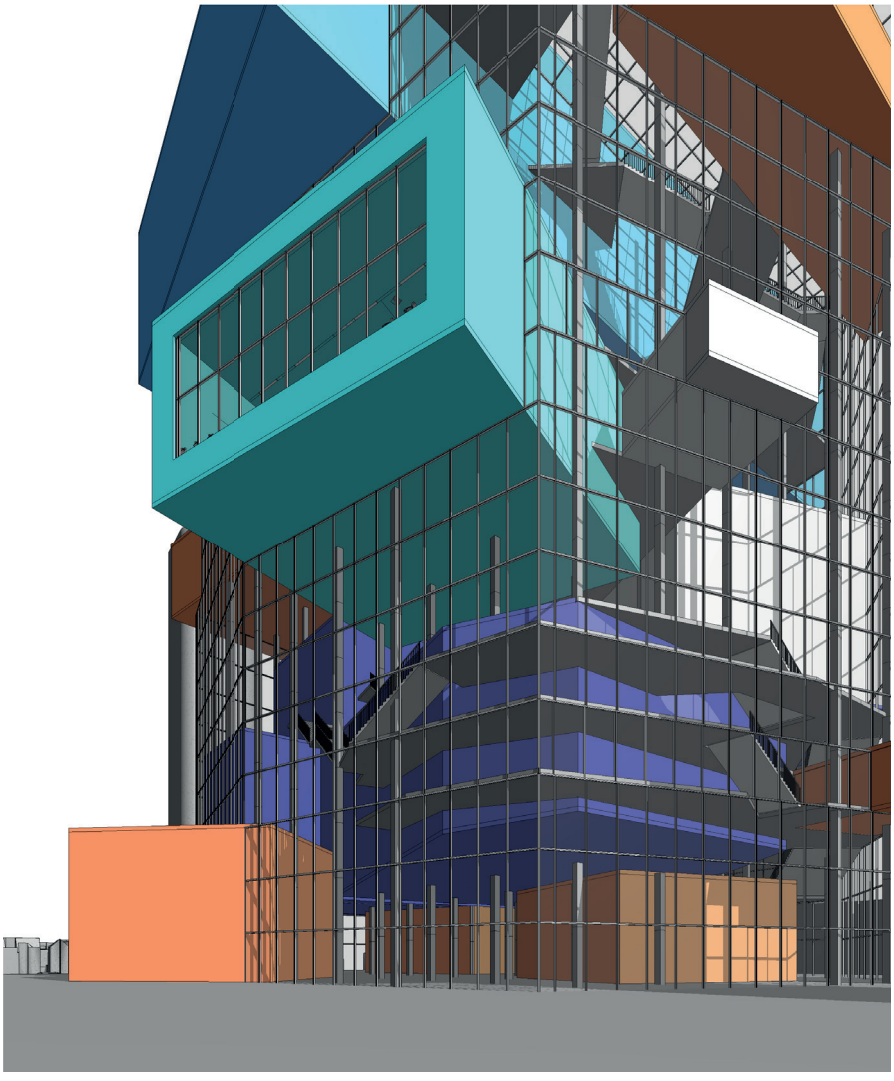


STAIRS AND PLATFORMS IN THE AIR

In the void around the masses are stairs and platforms placed for circulation through the building. A central core is needed for elevators, a second escape route and for structural stability. On these platforms additional program takes place, they can act as foyers, cafe's, pop-up performances, etc.

9.28.
Stairs and platforms for circulation are placed within the open space between the masses.

GRAND ENTRANCE

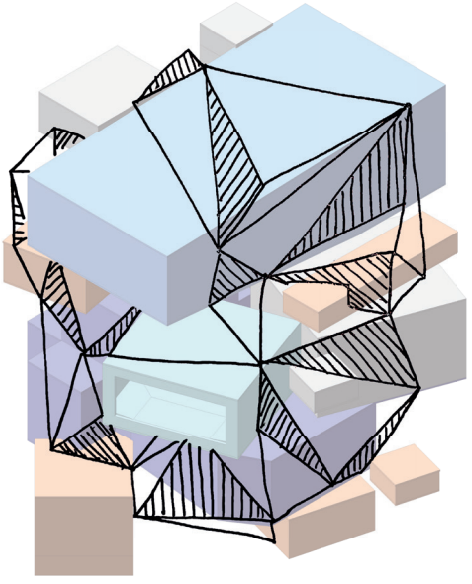


OPEN AND MONUMENTAL

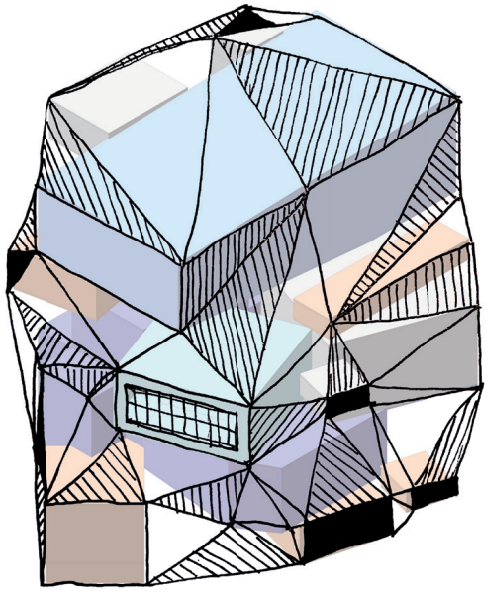
When approaching the venue, visitors will be confronted with a building that is both monumental and transparant in appearance. The disctinct and amplifying forms of the "festival" are visible from outside. Specifically the chamber music hall volume stands out, as it sticks out of the building 32 meters above the main entrance.

9.29.
Perspective impression of the entrance area of the music venue, seeing the large volumes through the skin.

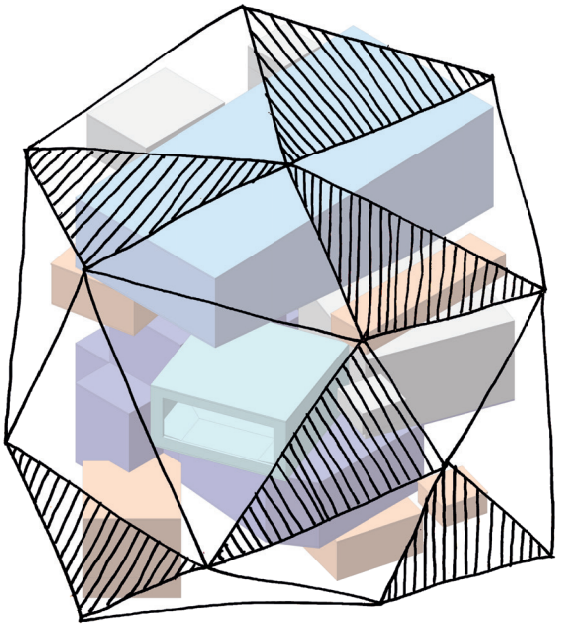
FACADE OPTIONS



1. TIGHT



2. FITTING



3. LOOSE

TRIANGULAR SKIN

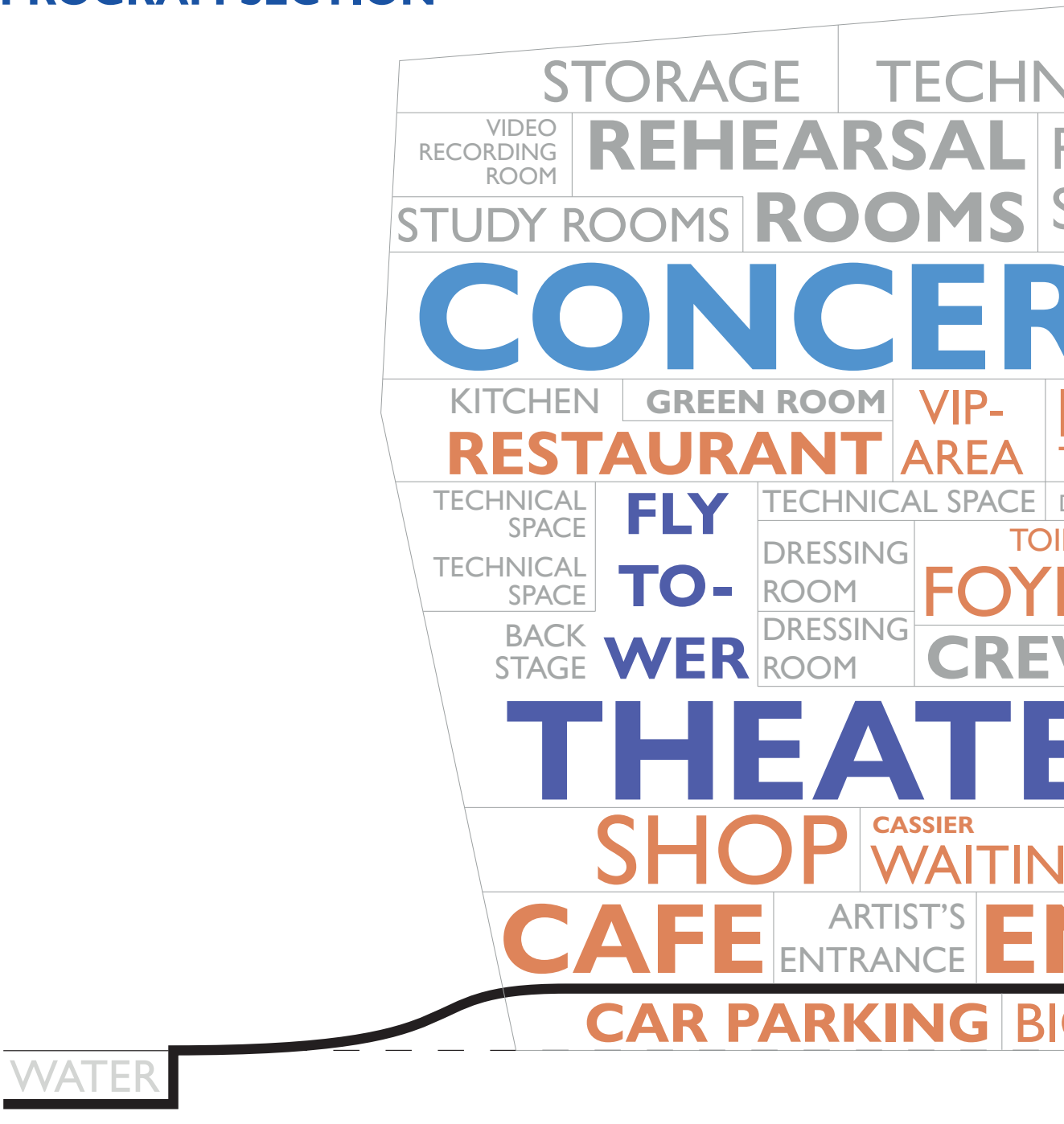
Three possible facades are shown above, as a study to how a skin (that refers to the context with triangular forms) could be wrapped around the masses of the vertical festival. In de first option, the skin is wrapped as tight as possible, leaving minimum circulation space and showing maximum masses on the outside. The second option is a just-fitting skin, encapsulating all the masses but still being quite efficient space-wise. The third option explore a loose fitting skin, totally encapsulating the masses plus leaving some extra open space on the inside. Exact shape might be determined by how much space around the masses is needed on the inside.

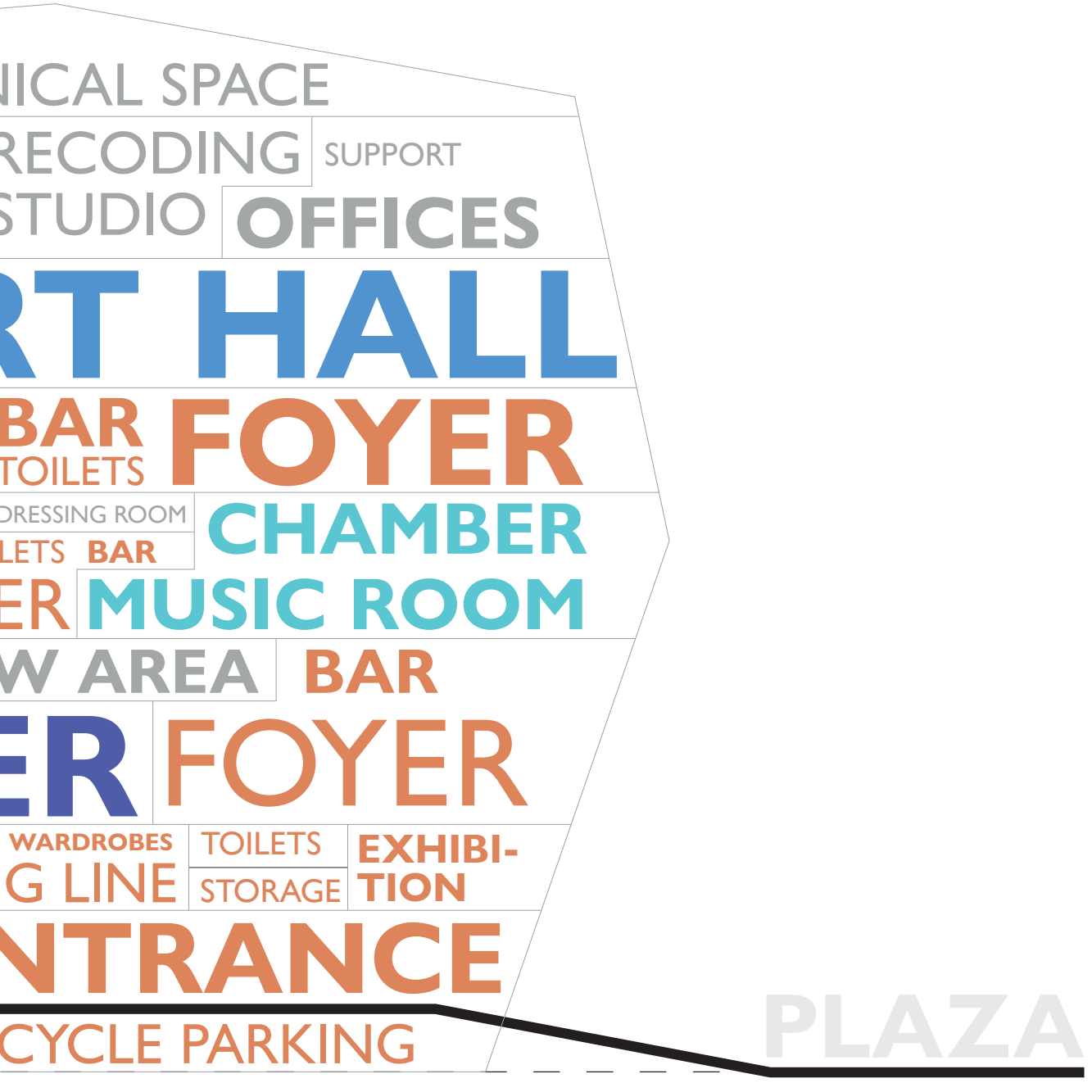
9.30. (left page, left)
First skin option: as tight as possible, leaving minimum circulation space and showing maximum masses on the outside.

9.31. (left page, right)
Second skin option: just fitting and being quite efficient with interior space.

9.32. (left)
Third skin option: a loose fitting skin encapsulating the masses and extra space whole.

PROGRAM SECTION





9.33.
Abstracted section showing the placement of program, colour-coded as: blue = concert halls, orange = public spaces and gray = private / artist's spaces.

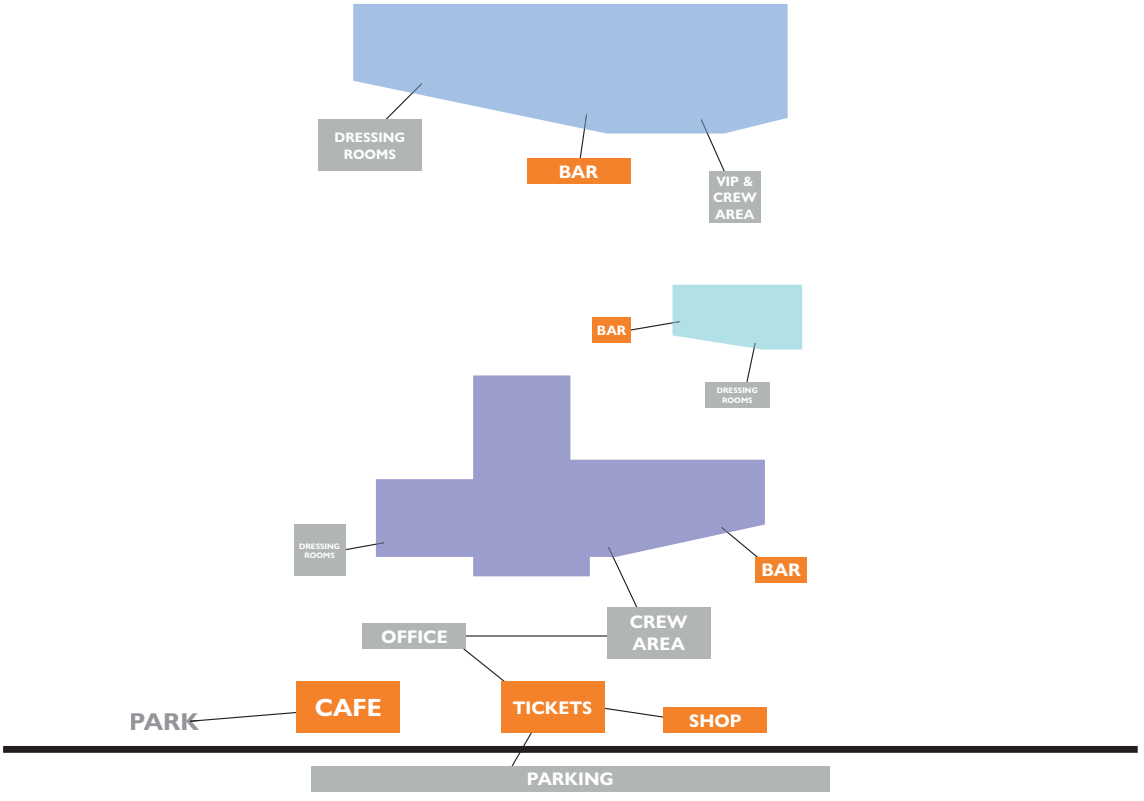
PROGRAM PLACEMENT



THREE HALLS

The placement of the three concert halls is already fixed, as this was determined by a combination of views / sightlines and the design principle of emphasizing verticality.

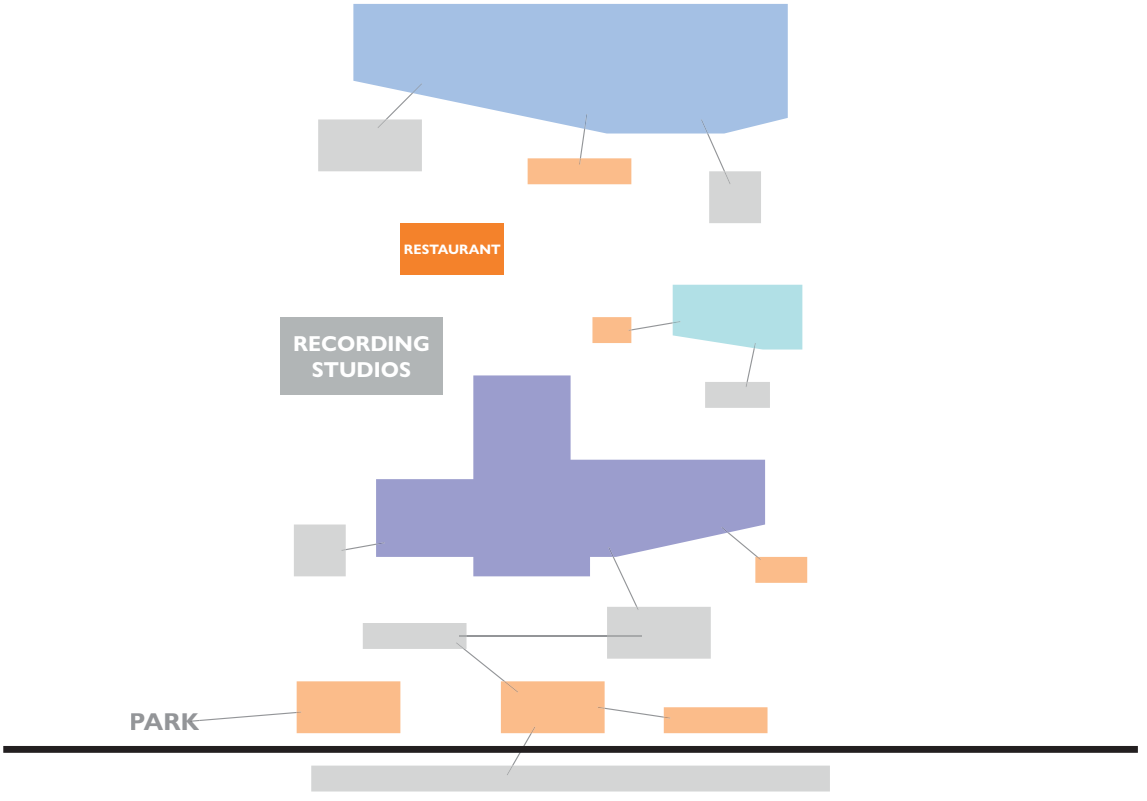
9.34.
Three halls stacked on top of each other with open space in between.



RELATED PROGRAM

Service program that belongs to each concert hall will be placed directly around the halls. Their exact placement will be determined by internal routing and efficient programming.

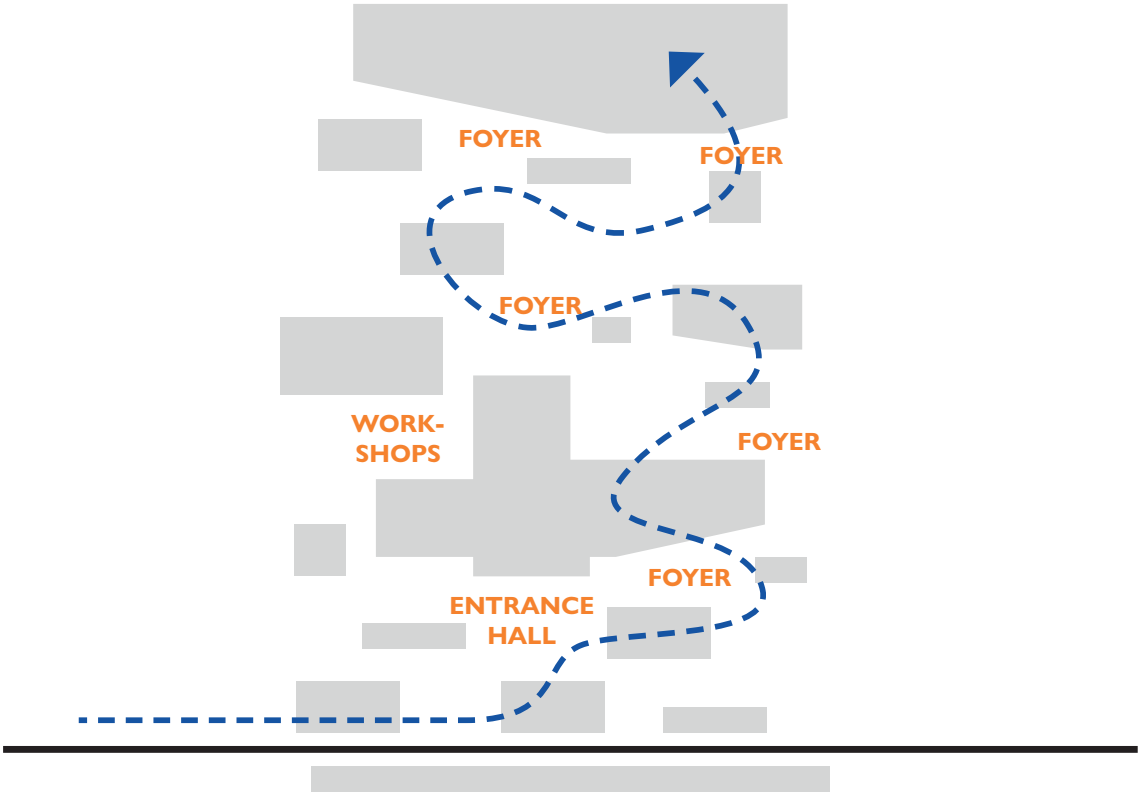
9.35.
Other program placed adjacent to the halls, within the open space.



OTHER PROGRAM

Program that does not have a specific relation to one of the three concert halls, will be placed in spaces where there are still "gaps" in the composition. Their exact placement can also be determined by views for example.

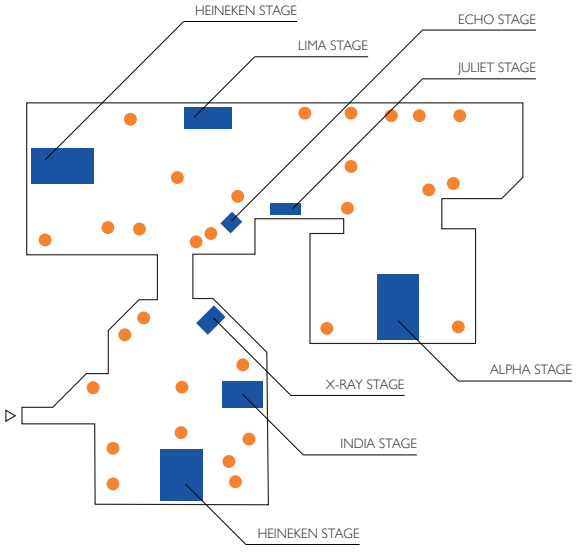
9.36.
Other program placed in leftover spaces.



OPEN SPACE
Foyers, circulation and other open, public program takes place in the "void" between the masses (i.e. the vertical festival terrain).

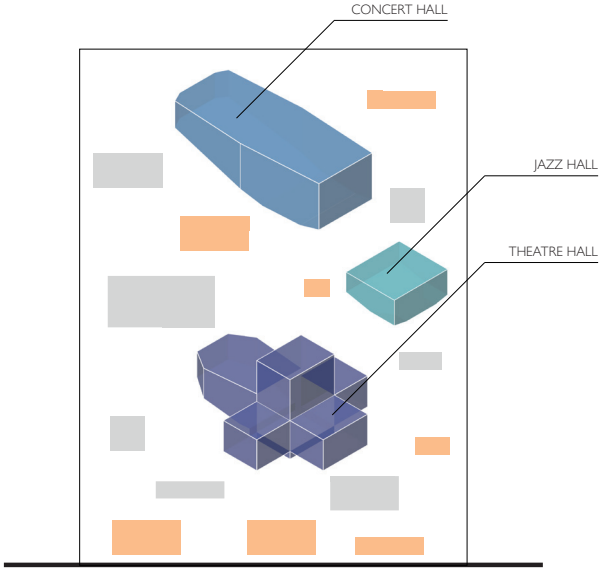
9.37.
Open space in between is festival terrain: activities and circulation.

FESTIVAL OF FORMS



TYPICAL FESTIVAL

The typical outdoor music festival (in The Netherlands) like Lowlands, consists of an open terrain whose borders are defined by its context. On this terrain, several large and small stages and stands / artworks are placed. It is a festival of music, with the large and striking stages as its centerpieces.



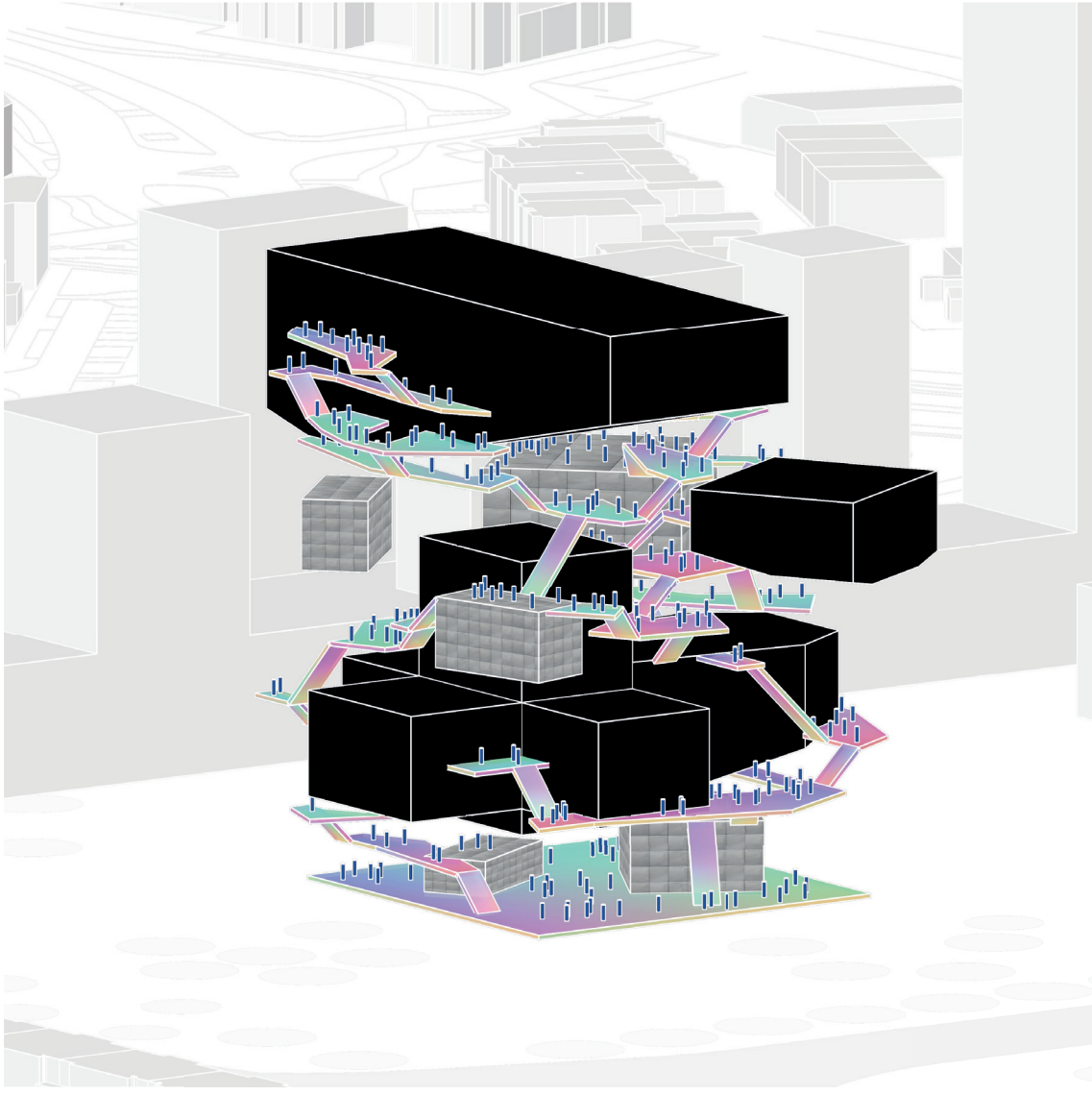
A FORM FESTIVAL

The music venue in the Binckhorst will be a "festival of forms", where not the grandness of the stages, but the form of the halls will be the most important characteristic. Experience of the festival is emphasized with form.

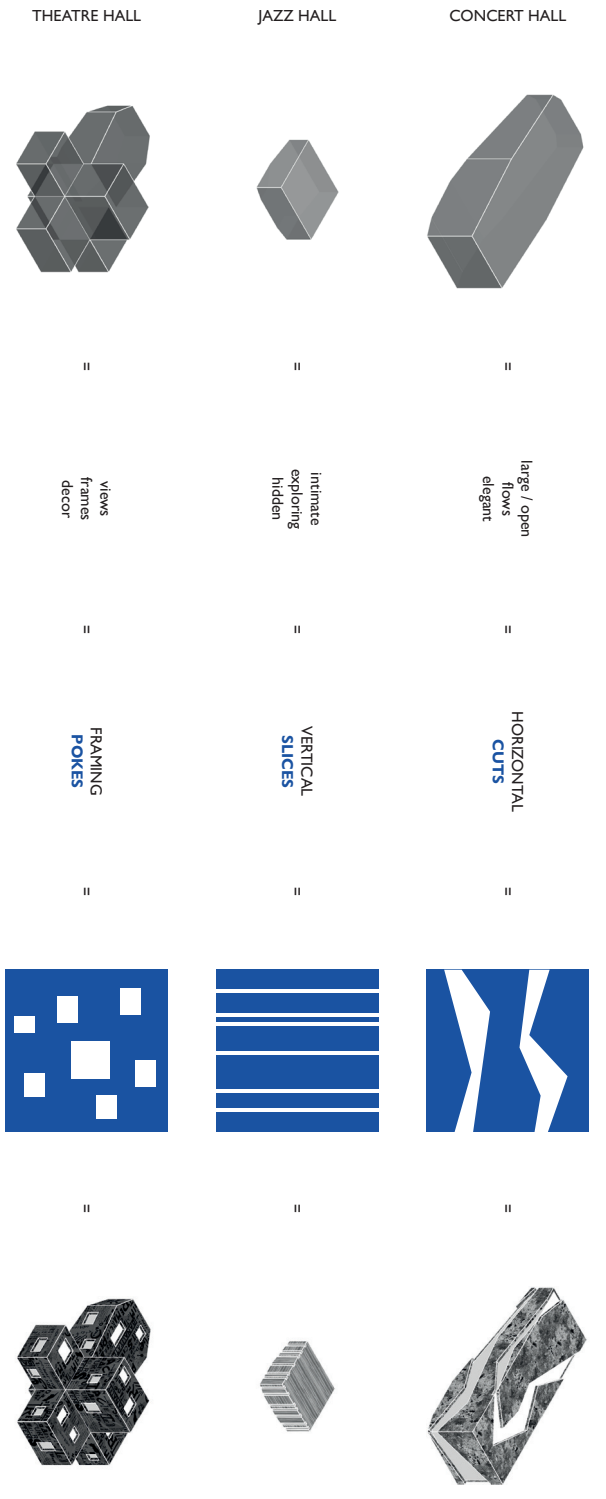
9.38. (top)
Analysis of Lowlands map with distribution of program.

9.39. (bottom)
Festival program translated into concert hall forms.

9.40. (right page)
Impression of the festival terrain with the three halls as separate stages within the space.

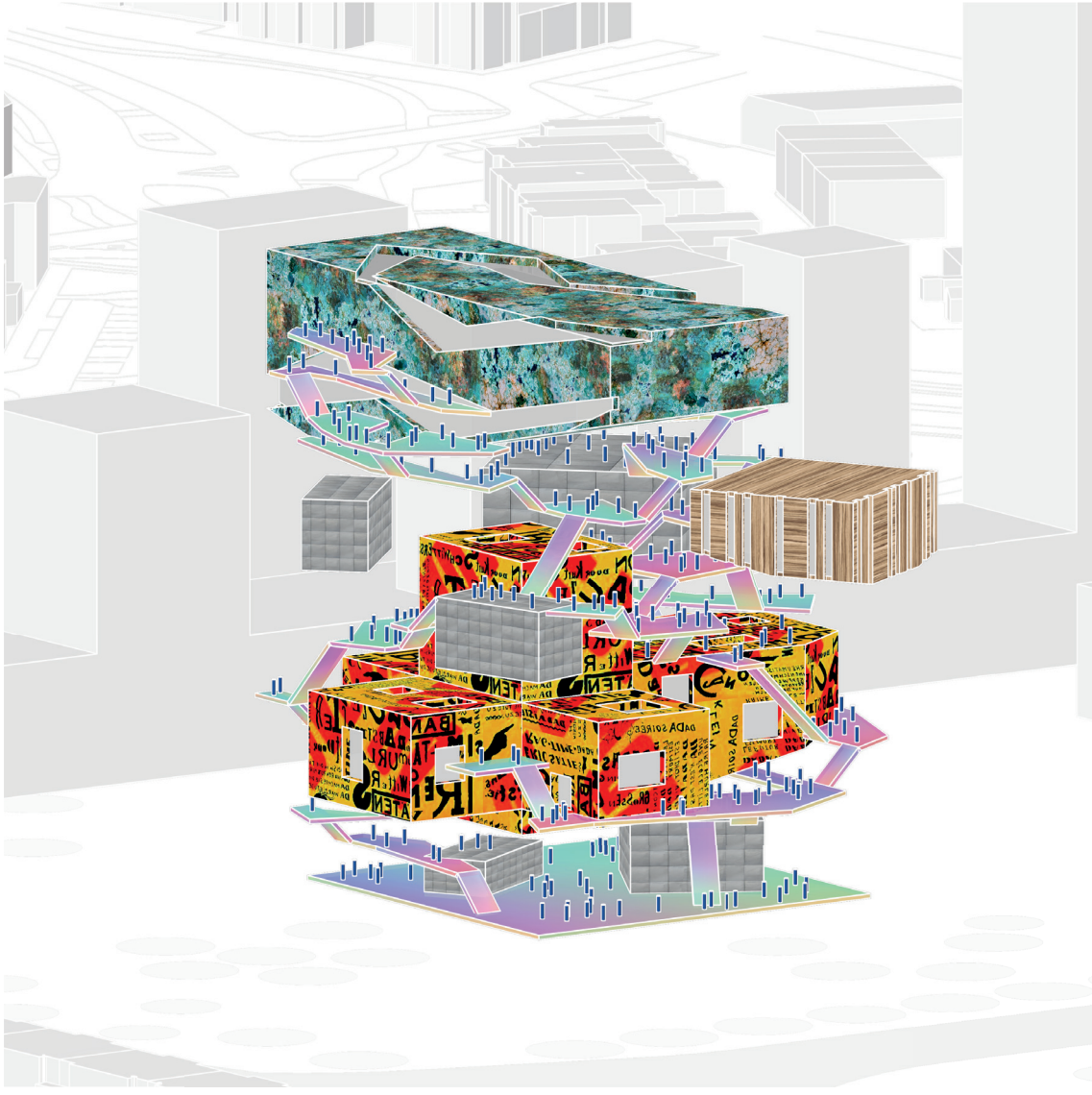


THE **SOLID FORMS** OF THE HALLS ARE **CUT OPEN** SO THAT THEY BECOME **PART OF** THE FESTIVAL TERRAIN, CONNECTING THE INTERIOR SPACE BOTH **VISUALLY** AND **PHYSICALLY**.



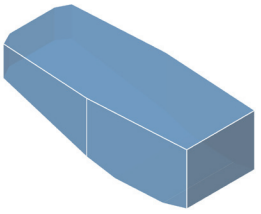
9.41. (left page)
The halls are cut open to become part of the festival.

9.42. (right page)
The three halls (stages) become an integrated part of the festival terrain, through their materialisation and openness.



MATERIALITY

CONCERT HALL



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JAZZ HALL



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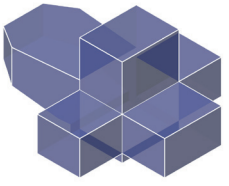
THEATRE HALL



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PUBLIC PROGRAM



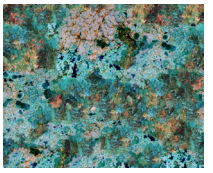
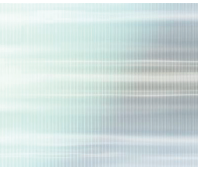
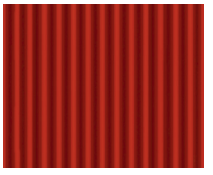
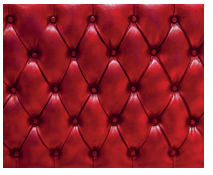
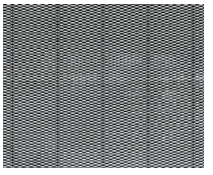
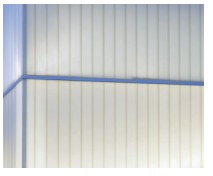
=

PRIVATE PROGRAM

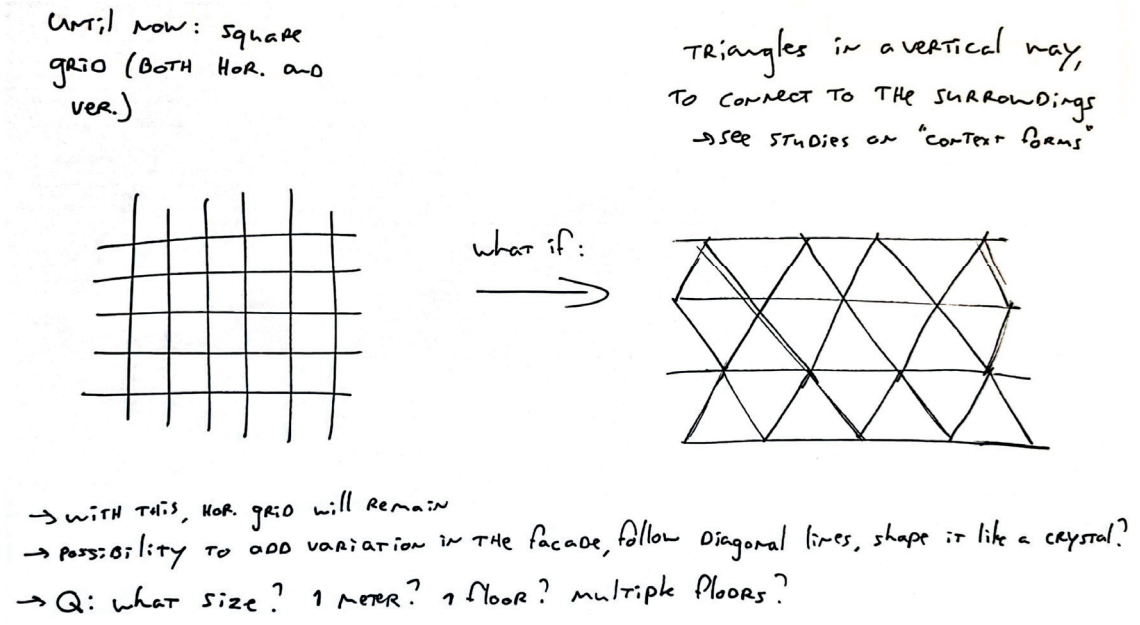


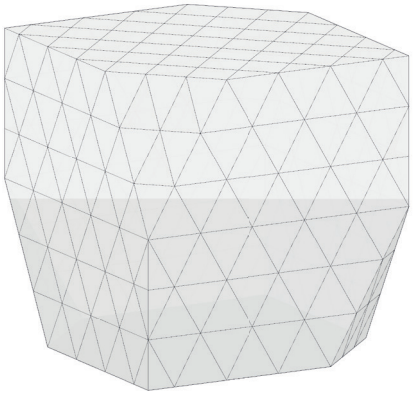
=

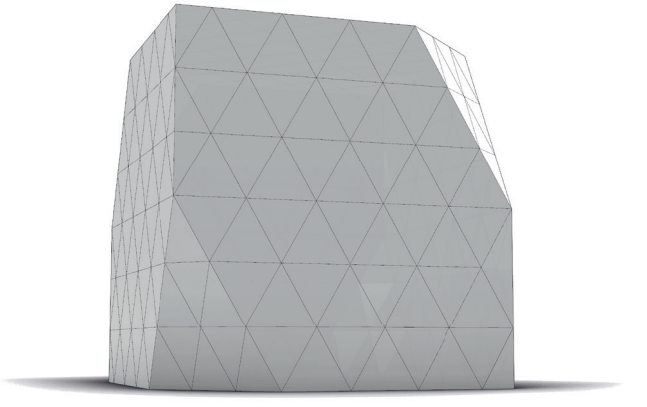
9.43.
Scheme explaining the material choices related to the program.

grand glamorous formal hi-tech multifunctional elegant	=	metal cladding shiny fancy glass translucent patterns	=		
intimate sophisticated soft natural personal improvisation	=	wooden panels lightweight burned wood tactile coloured?	=		
exciting theatrical improvisation showy multifunctional in the spotlights	=	metal cladding shiny fabric (curtains) corrugated sheets patterns tufted fabric colourful	=		
neutral attracting simple natural elegant open	=	cladding perforated light transparent inviting tactile	=		
closed sophisticated hi-tech neutral create interest	=	frosted glass metal translucent monochrome rigid	=		

FACADE







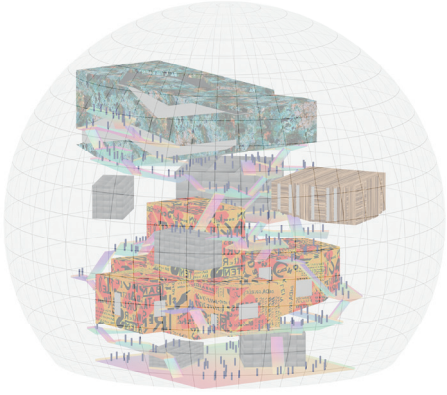
GRID FACADE TRIANGLES

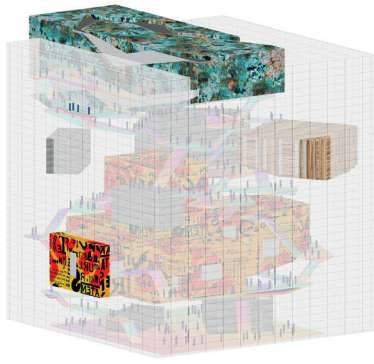
Exact "crystal" shape determined by views and/or pathways? (cut where neccessary?) or determined by where volume is needed for interior spaces?
What triangles: all sides the same (i.e. corners of 60 degrees) or different? (more emphasis on verticality maybe, or FREEFORM?)
Grid (in plans) will be diamond-shaped (orthogonal grid on 45 degree angle).

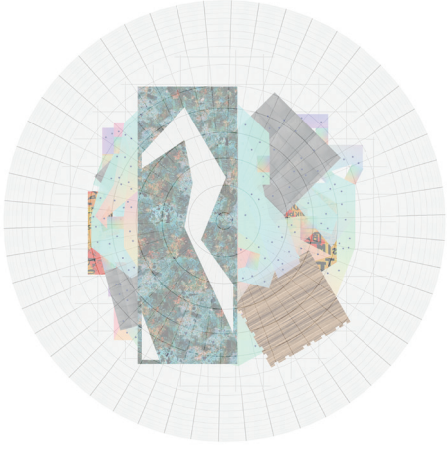
9.44. (top)
What if the grid of the facade consists out of triangles (related to the research on forms in the context)?

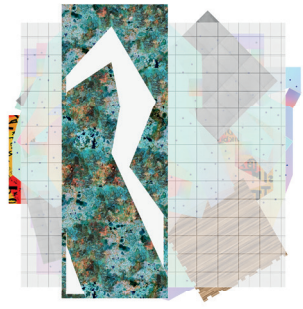
9.45. (bottom, left)
Option of cutting corners for grand entrance.

9.46. (bottom, right)
Option of cutting corners for grand entrance.









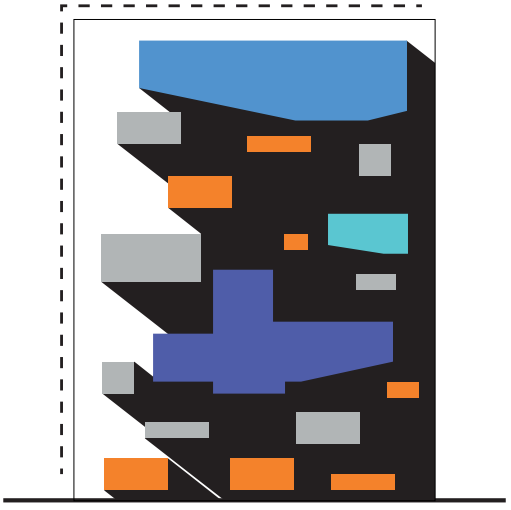
9.47. (top, left)
What if the facade is a large dome covering all the festival space?

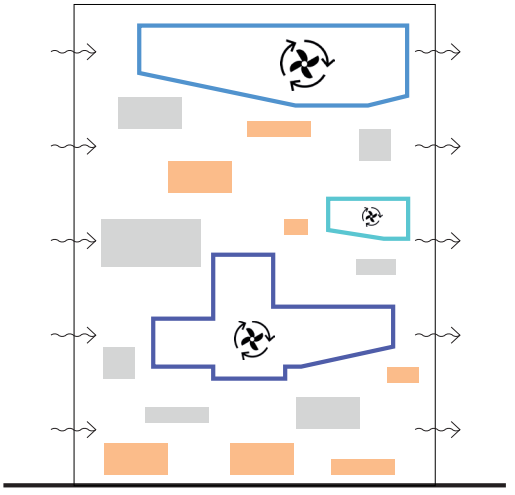
9.48. (bottom, left)
What if the facade is a large dome covering all the festival space?

9.49. (top, right)
More conventional: a cube instead of a dome.

9.50. (bottom, right)
More conventional: a cube instead of a dome.

CLIMATE PRINCIPLES





NATURAL SHADING

The south side of the building will have a high sun load, while the inner parts and the north side of the building will remain mostly in the shadow. PV-panels and sun blocking screens can be integrated into the facades to generate power and to reduce the sun load.

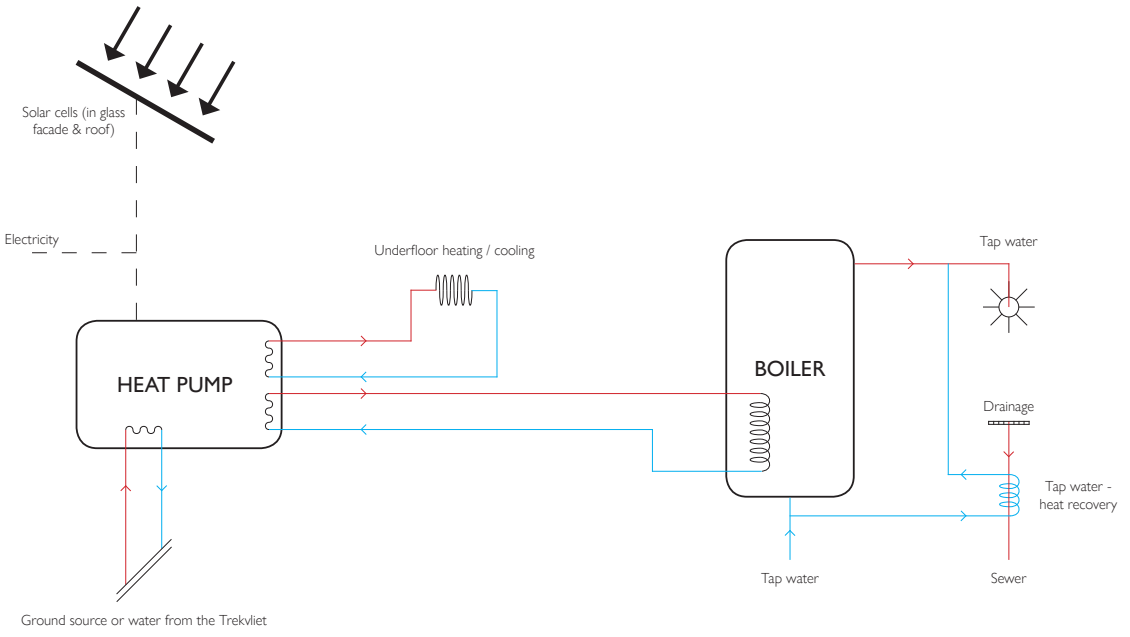
VENTILATION

Two different systems for ventilation will be used. The "festival terrain" will have natural ventilation to emphasize the outdoor feeling. The concert halls and other rooms that have specific requirements will have mechanical ventilation to be able to control the indoor climate.

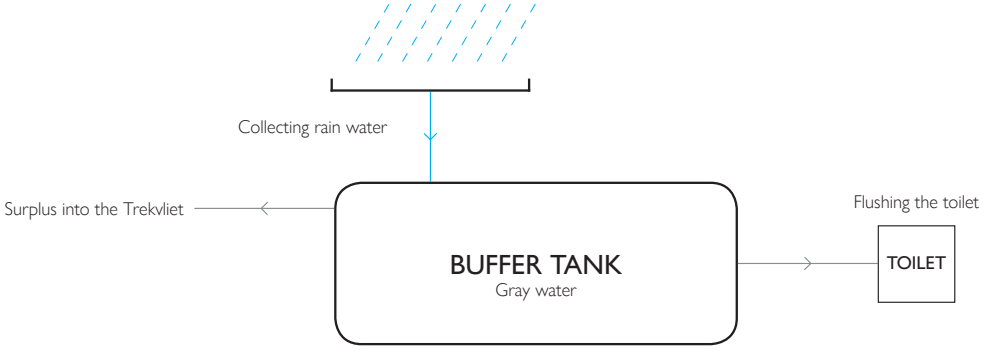
9.51.
Interior shading by masses.

9.52.
Use of both natural and mechanical ventilation.

HEATING PRINCIPLE



RAIN WATER COLLECTION



9.53. (top)
Scheme explaining the heating and water principle.

9.54. (bottom)
Possibility to collect rain water.

CIRCULARITY

STUART BRAND DIAGRAM

For the Building Technology topic of circularity, the Stuart Brand diagram of the six layers of a building is used to define the circular aspects of the elements from each of these layers.

1. SITE

The site is of course the most permanent aspect of the building, it is an existing context and it is fixed. To blend in with the site and to allow for interaction to take place, the plinth of the music venue will be as open as possible, blurring the border between interior and exterior.

2. STRUCTURE

The main structure of the building will be a steel frame. This has several advantages. At first, it allows for a highly flexible set-up of floor plans as there are no load bearing walls, only columns. Next to that is the use of steel beneficial because of the low amount of material that is needed, meaning less weight and therefore a lighter construction. Lastly, the frame can be made demountable, so it can be disassembled and reused when the building's life is over. As secundary construction material, wood (CLT) might be used for floors and walls.

3. SKIN

Most of the facade will be a curtain wall system with glass or cladding on a frame, both can be demountable and therefore circular.

4. SERVICES

Circularity of services is interpreted as a logical placement of technical space and shafts. This means that it leaves enough freedom in floor plan design but is also beneficial when it comes to installing pipes and wiring to the building.

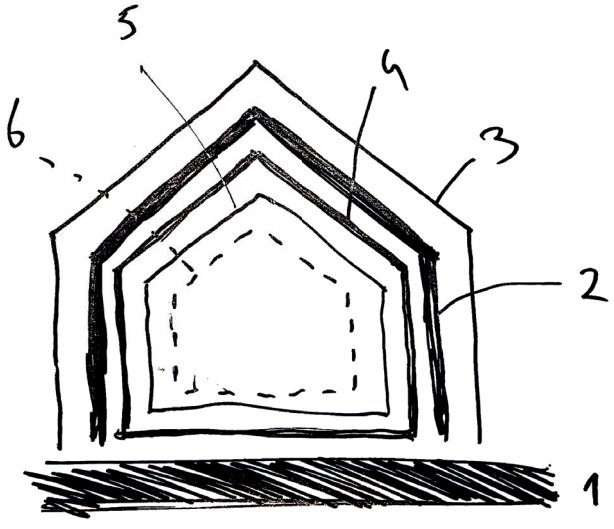
5. SPACE PLAN

The aim for the layout of the floor plans is that it is open and multifunctional. This means that the same space could be used for different program. For the concert halls specifically this means that they have flexible seating so that the seats can be rearranged or taken out according to the activity taking place.

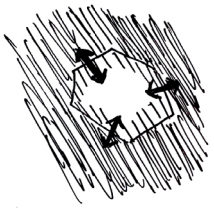
6. STUFF

Circularity on the level of furniture means that perhaps re-used furniture can be used. Next to that, general systems for furniture (kitchen cabinets, toilets, etc.) can be used to avoid the high costs of custom-made items.

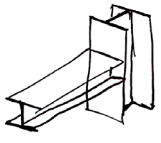
9.55. (right page)
Sketches on the topic of circularity, using the Stuart Brand diagram of building layers.



1: SITE : fixed, PLINTH will blend, POROSITY



2: STRUCTURE : Steel frame : Highly flexible, Demountable



3: SKIN : glass ? cladded ? → DEMOUNTABLE

→ SYSTEM/GRID STRUCTURE



4: SERVICES : Technical space, logically placed

→ SHAFTS, etc



5: SPACE PLAN: Multi-usage, flexible



6: STUFF : Re-used FURNITURE?

SITE CONDITIONS

CHALLENGES ON SITE

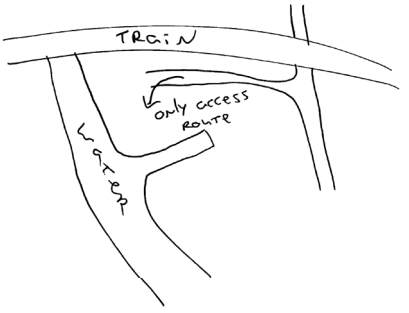
The location of the music venue is at the spot of the former gas factory of The Hague, where currently the waste facility of the municipality is situated. On the north side the site is bordered by train tracks and on the west side there is water (the Trekvliet). This means that currently the only access route is via the Binckhorstlaan on the east side of the location.

Because (heavy) industry was and is located on the site, it means that the ground is heavily polluted. This means that it is extremely costly to dig into the ground as the excavated soil has to be taken away as industrial polluted waste. A maximum of one meters is fine to dig, which is needed for the foundation of the building. Because of the impossibility to go under ground, the parking garage will be placed on the current ground floor. The entrance floor and the park around the building will be raised to create an artificial higher ground level.

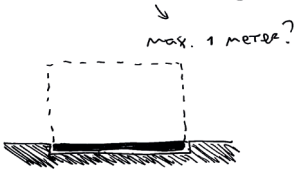
Another impactful aspect of the site is that it will be located in a dense area and that it will be surrounded by highrise buildings. To fit in the surroundings, this means that the program of the building will be stacked on top of each other. For acoustic purposes, this means that every hall will get it's own structure and foundation, separated from the rest of the building.

At last, it is the ambition to use a lot of glass in the facades. Because of the orientation towards the south, this means that the sun load will be very high meaning that the temperature can rise immensely. Therefore, some kind of sun screens or passive way of blocking sunlight should be considered, as well as making use of the fact that there will be a lot of sun on the building by adding PV-panels (for example transparent ones incorporated in the glass).

9.56. (right page)
Sketches on the topic of site conditions, highlighting the specific challenges the site offers.

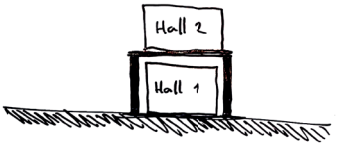


→ polluted soil → no excavating



Dense area + HighRise:

→ music marvel: Halls will be stacked!



separated construction (acoustics)

→ if a lot of glass is used →
temperature ↑, because of orientation



ENERGETIC ISSUES

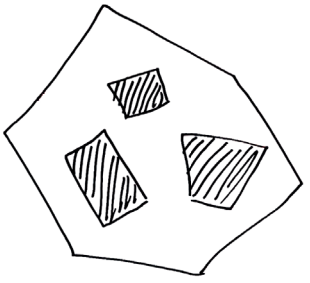
ENERGETIC ISSUES AND SOLUTIONS

As said before, because of the ambition to use quite a lot of glass in the facades, the heat coming from the sun is a problem. In winter the same goes for heating the building when a lot of surface is exposed to the cold. Next to that, special attention has to be given to the fact that the circulation space (together with the foyers and other program situated in "the void" around the concert halls) will be one continuous space that is open throughout the whole building. This calls for specific heating / cooling solutions and for the need of adding sprinklers when talking about fire safety.

An advantage of the high exposure to the sun is, as said in the previous chapter, that PV-panels can be installed in the facade for own energy production. Calculations will have to be made to investigate how much PV-panels are neccessary to cover the energy demand of the whole building.

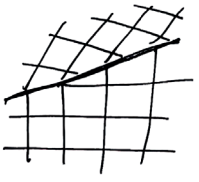
At last, as a side topic that is more related to building technology systems in general, special attention has to be given to ventilation ducts. Perhaps it is an option to install flexible air ducts so that sounds can not transfer through the walls of these ducts.

9.57. (right page)
Sketches on the topic of energetic issues.



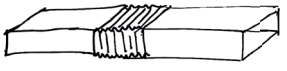
CONCEPT: multiple Halls
in an enclosed space
→ "indoor festival" idea
→ glass skin

→ own energy production:
PV-panels integrated in facade



→ How does Heating/cooling and ventilation work in Relation to acoustics?

↓



flexible air duct?

MATERIALITY

FACADE CONSTRUCTION

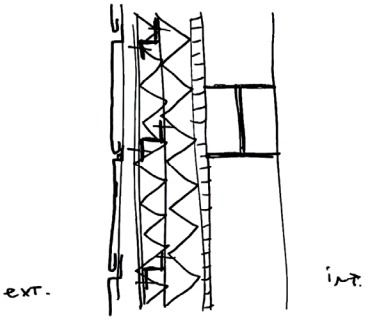
Most of the facade will consist of curtain walls with glass infill. These will have a repetitive grid that will be determined according to construction grid sizes and aesthetics. Solid parts of the facade (for example: the masses) will have panels that are mounted on a frame which is attached to the main construction. This allows for a flexible and thin facade because the frame for the panels can be in the same layer as the insulation.

The concert halls and the other masses within the building will each have their own identity, which means they will each have their own materialisation (similar to Tivoli Vredenburg for example). Research on the characteristics and identity of each of these halls will determine what these materials will be.

Because of the ambition to create an open plinth, a schematic vertical detail of the connection of the exterior floor, the interior floor and the glass facade is shown on the right page on the bottom. The window sill will be sunken into the floor and the floor material on the inside and the outside will be the same, to create the illusion that the space is continuous.

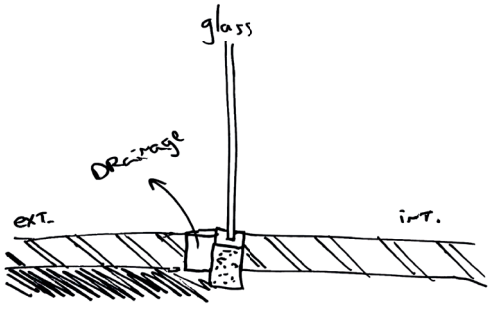
9.58. (right page)
Sketches on the topic of materiality, exploring some material characteristics in detail drawings.

- glass facade → curtain walls
- cladding (panels) → same principle + isolation
- OR like this: (mounted on steel frame (structure))



- Concert Halls (3 in total)
  - → all have their own identity & materialisation
  - → for example: Tivoli Vredenburg

- ground floor:
  exterior floor continues inside:



ACOUSTICS

CONCERT HALL TYPOLOGY AND ACOUSTIC PANELS

The shape of each one of the halls is directly determined by the acoustic requirements. For the main concert hall for example a shoebox typology is chosen in order to create excellent acoustic qualities (because of lateral reflection of sound).

Another important point is that construction-wise, every room or hall where acoustics is important (the concert halls, rehearsal rooms and recording studio's) will be separated from the main construction using the box-in-a-box principle.

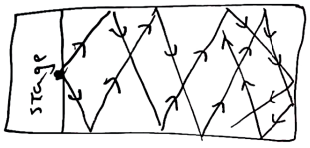
For the theatre hall which will be able to host the most diverse program, but maybe also for the other halls, movable wall (and / or ceiling) panels are an option for changing the volume of the room. Next to that, maybe two different panels can slide in front of each other, one being absorptive, the other being reflective (see sketch on the right bottom). With these options, the reverberation time will be adjustable, to meet the requirements of different music genres.

9.59. (right page)
Sketches on the topic of acoustics, showing form principle and wall finishes for absorption or reflection.

- Halls & Rehearsal Rooms/Recording Studios are separated

  → Box-in-a-Box

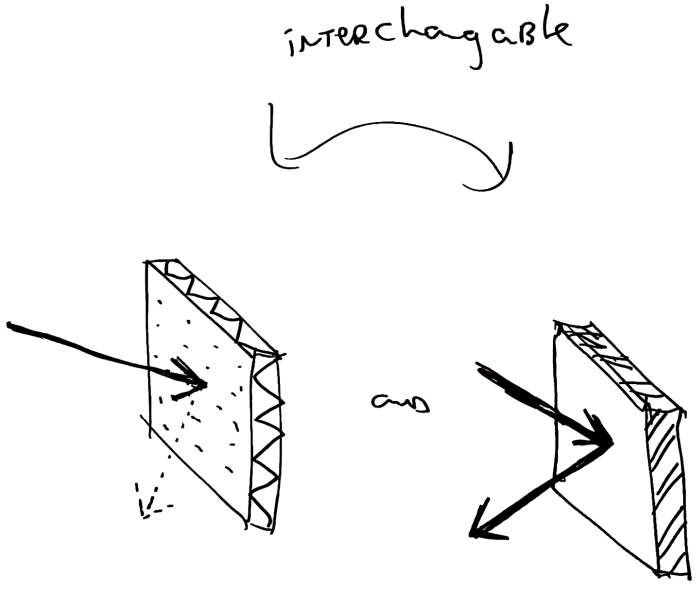
- Shoebox type Concert Halls



- adjustable Reverb time

  → for example 1.2 - 1.8 sec?

  → movable panels for changing absorption & reflection



MULTIPLICITY

MULTIPLICITY BY PROGRAM

The notion of multiplicity will manifest itself in the possible use of program within different space in the building. The prime example is the theatre hall. This hall will have a fly tower so it can be used for theatre plays, opera's, comedy, etc. Next to that it will also be usable as for things as a conference hall, lecture room, cinema, etc. Demountable chairs and movable acoustic solutions add to this notion of multiplicity by program.

Another example of multiplicity by program in the music venue is the circulation space around the halls. Apart from circulation, these spaces will also be used as foyers, exhibition spaces, cafe's, meeting places, etc.

9.60. (right page)
Notes on the topic of multiplicity, elaborating on the idea of multiplicity through program.

• multiple concert Halls + THeater + conferences + lectures + shows + comedy + RestauRant + exhibitions + Cafe + shops + Rehearsal Rooms + study Rooms + Recording studios + offices + ... + ... + + ++

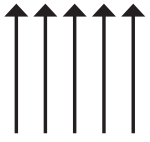
→ COMBINING : concert Hall will have a flytower so it can be used for THeater too and it will Have modifyable acoustic solutions so it can be used for multiple music genres

→ demountable chairs = formal concerts AND standing crowds

→ porous facade → blending int & ext, clear Relation with the surroundings (park)

10. CONCEPT

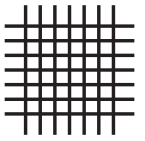
DESIGN PRINCIPLES



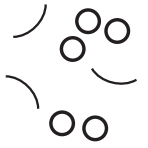
Emphasis on verticality



Triangular shapes



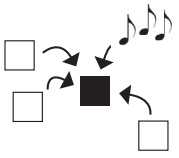
Rhythm / repetition



Round shapes as details



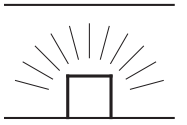
Sculptural and iconic



Inspiration from context



Strong lines



Grand entrance

DESIGN: KEY ASPECTS

The eight form principles shown above and discussed before will be used throughout the project to design an iconic building for music. Next to that, architectural form will be used as an amplifier for the experience the audience will have when visiting the venue. This is done by giving every program in the design distinct and recognisable shapes. These shapes are determined by the outcomes of the research on form. The manifesto on the Binckhorst will be incorporated in the project in such a way that the music venue will resemble a vertical festival, the program is multiplicit and the building is as open and accessible as possible. At last, coming from a research paper on how to create iconic architecture, three rules are applied (as can be seen on the right) to the design in order to increase the iconic value of the venue.

10.01.
All eight design principles as icons, derived from research on the design location and the case studies.

THEORY:

Form as amplifier for the visitor's experience

Every program has a distinct shape

Research outcomes are input for defining form

MANIFESTO:

Maximum mixing: multiplicity in program

The music venue as a "vertical festival"

Transparency: removing borders

ICONIFICATION TOOLBOX:

Consider 'pictogramic silhouette' for the building

Use shape as timeless abstract signifier

Don't use too obvious / literal symbolism

Pipinis, J. (2014). A Toolbox for Iconic Architecture. *International Conference on Competitions 2014 Delft, 5.*

STACKING: CONFIGURATIONS

EMPHASIS ON VERTICALITY
To enhance the notion of verticality through form, the three concert halls will be stacked on top of each other. Because there are three halls, this means there are six possible configurations to place them on top of each other, as you can see on the right page. To determine which configuration would be the most benificial, they have been reviewed using the parameters shown on the bottom of this page. Some principle to emphasize verticality are written down below:

Bigger volume placed on top, overhangs

AND

More open facade at the bottom, less at the top

AND

Grid in the facade becomes denser when going up

AND

Staircases as prominent element in the circulation space

PARAMETERS

EMPHASIS ON VERTICALITY
- stacking / bigger volumes on top
- more open at the bottom

VIEWS
- Skyline as backdrop for concerts

COMPACTNESS
- create the feeling of a festival
- convenient for the structure

MULTIPLICITY
- Multi-purpose theater at the bottom (easy accesible)

10.02. (right page)
Six different stacking configurations of the three concert halls, with their pro's and con's.

TOP: Chamber music
MIDDLE: Theater hall
BOTTOM: Concert hall



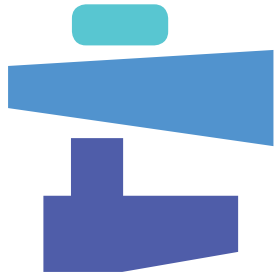
\+ Very compact configuration
\- Big volume at the bottom

TOP: Theater hall
MIDDLE: Chamber music
BOTTOM: Concert hall



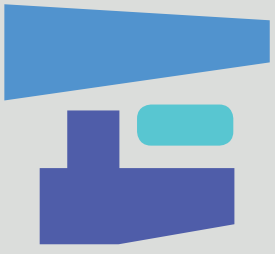
\+ Fly tower highest point
\- Big volume at the bottom

TOP: Chamber music
MIDDLE: Concert hall
BOTTOM: Theater hall



\+ Multi-purpose theater at the bottom
\- Smallest volume on top

TOP: Concert hall
MIDDLE: Chamber music
BOTTOM: Theater hall



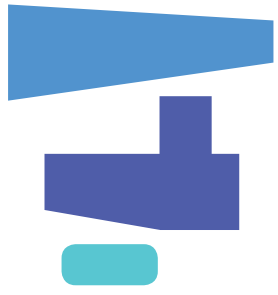
\+ Multi-purpose theater at the bottom
\+ Compact
\+ Largest volume on top

TOP: Theater hall
MIDDLE: Concert hall
BOTTOM: Chamber music



\+ Fly tower highest point
\- Big volume at the bottom

TOP: Concert hall
MIDDLE: Theater hall
BOTTOM: Chamber music



\+ Largest volume on top
\+ Small volume at the bottom

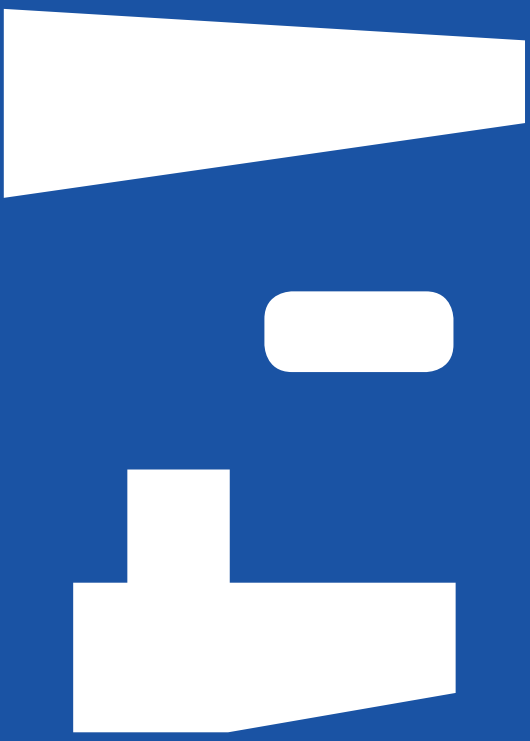
THE CONCEPT

10.03.
Stacking the three concert hall forms.



STACKED CONCERT HALLS
Individual masses are floating in space, characterised by distinct forms to represent their program or music typology. The different ‘stages’ enhance the notion of a vertical festival.

10.04.
Everything around the masses is "festival terrain".

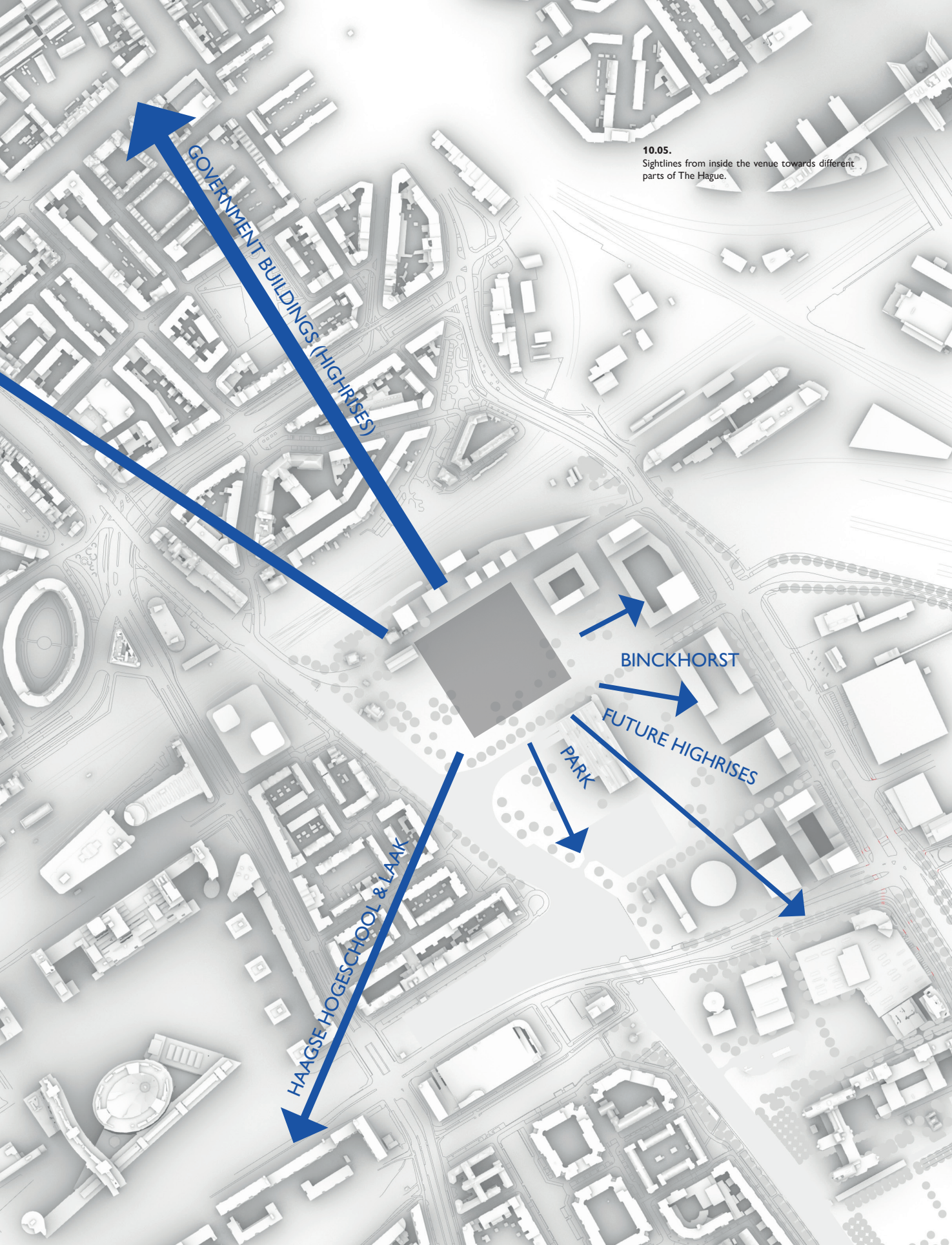


VOID AROUND HALLS

The space around these masses is a void, an open space that can be seen as a tabula rasa. Suitable for wandering around and exploring the Music Marvel endlessly: the festival terrain.

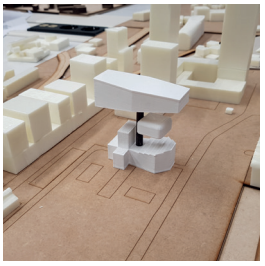
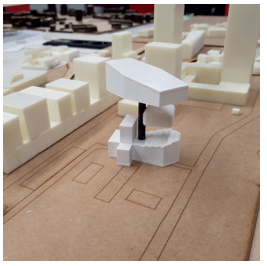
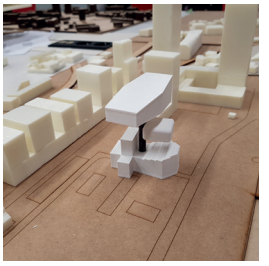
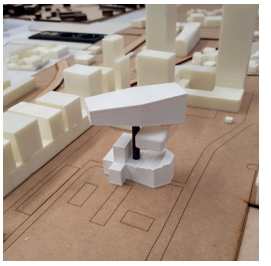
BECAUSE
OF THIS
STACKING
WITHIN THE
ENDLESS
SPACE, THE
ORIENTATION
AND EXACT
LOCATION OF
THE **MUSIC**
HALLS CAN BE
DETERMINED BY
VIEWS



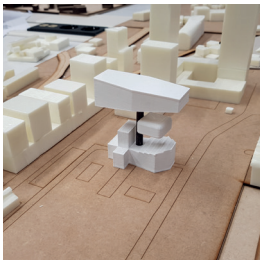
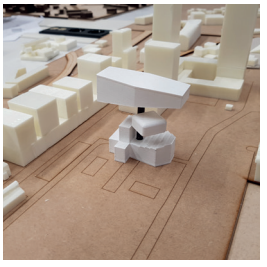
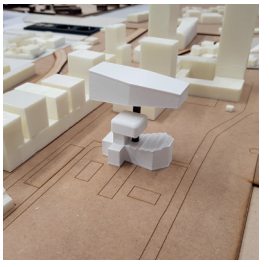
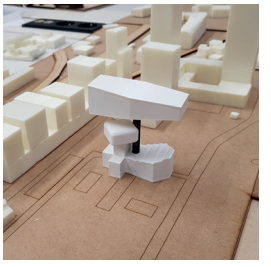


10.05.
Sightlines from inside the venue towards different parts of The Hague.

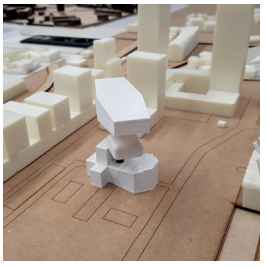
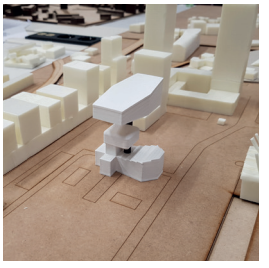
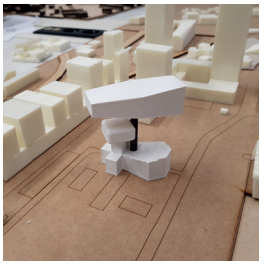
ROTATING CONCERT HALL, FIXED CHAMBER MUSIC ROOM, FIXED THEATRE HALL

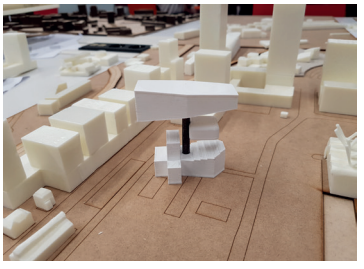
FIXED CONCERT HALL, ROTATING CHAMBER MUSIC ROOM, FIXED THEATRE HALL

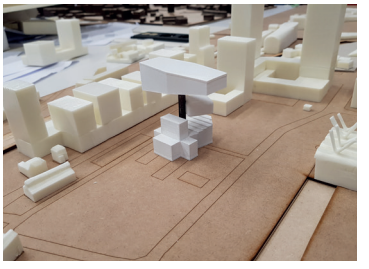





CONCERT HALL AND CHAMBER MUSIC ROOM ROTATING SIMULTANEOUSLY, FIXED THEATRE HALL

DIFFERENT ORIENTATIONS BASED ON INTERESTING VIEWS



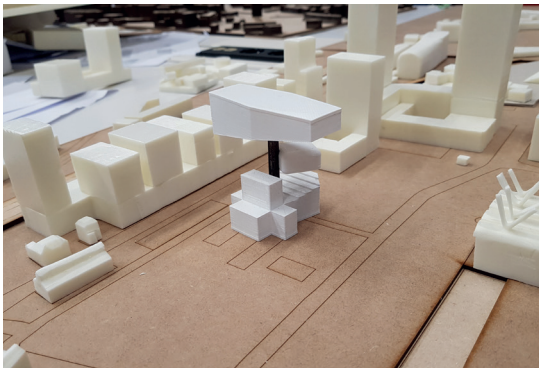
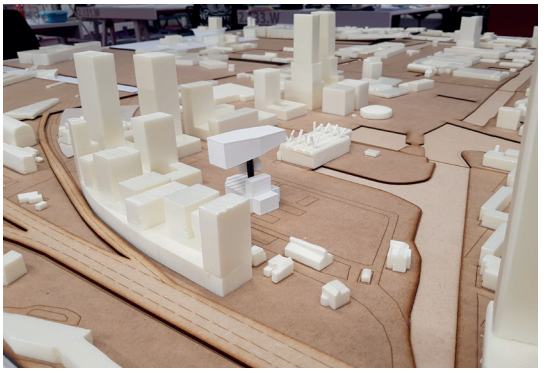


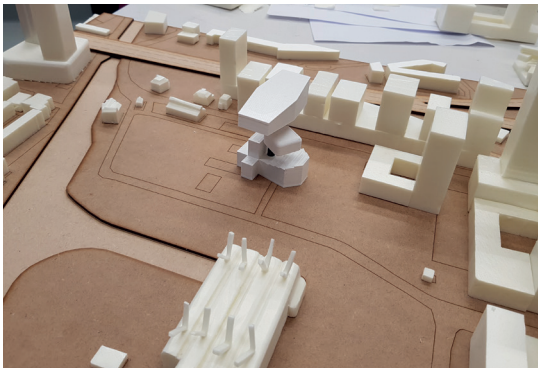
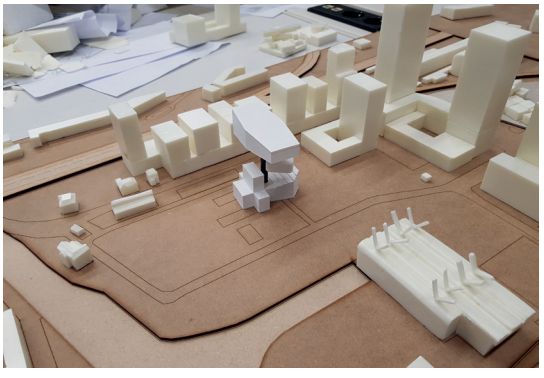
ORIENTATION OF HALLS

In the large 1:1000 context model, several orientations of the stacked concert halls have been tested, defined by interesting views and sightlines on different parts of The Hague.



10.06.
Set of photo's of the different orientations of the concert halls placed in the context model.

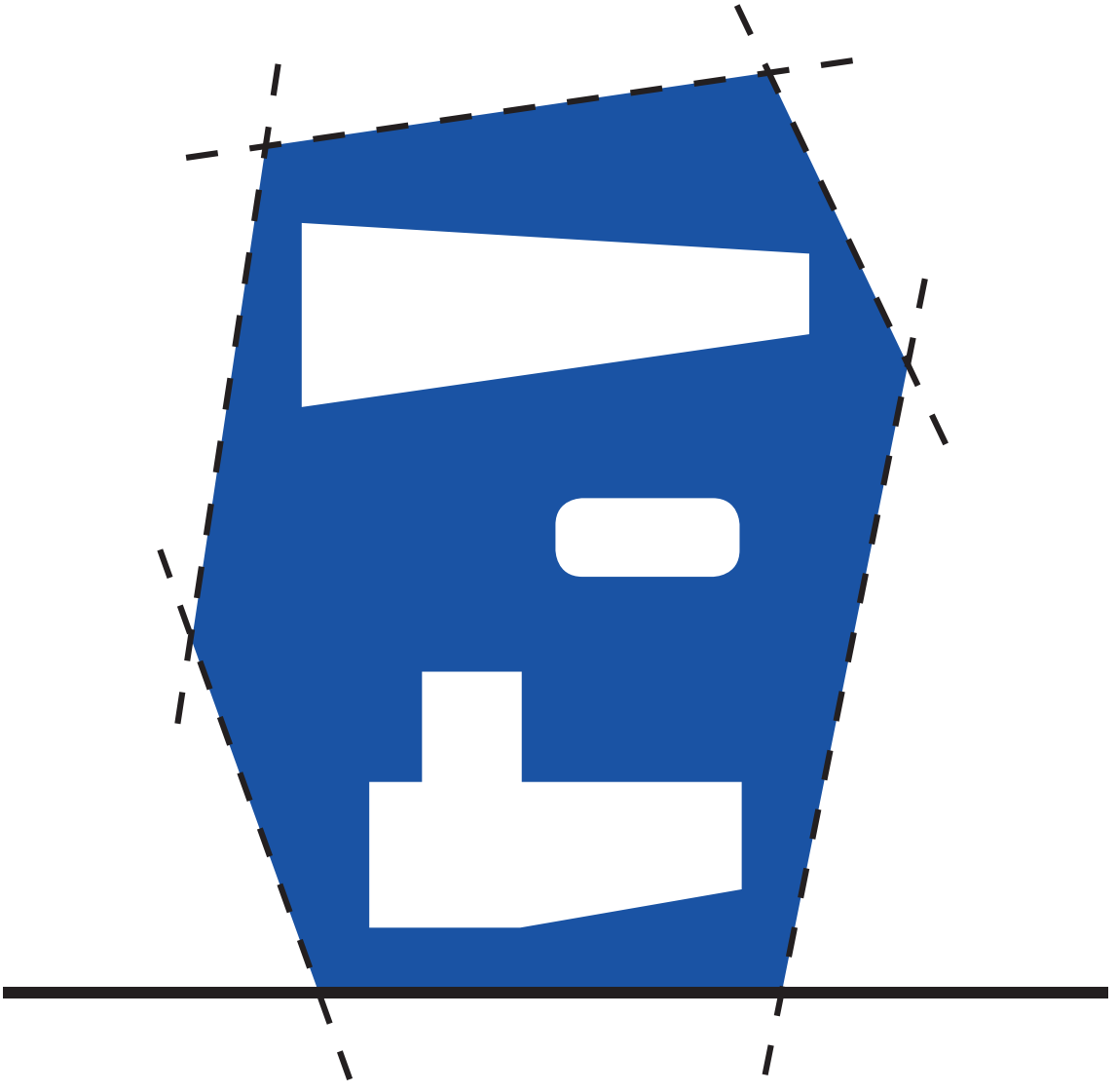




CHOSEN ORIENTATION

The main concert hall will look towards the city centre of The Hague (overlooking both the old city centre with the Binnenhof and the highrise buildings of the government). The chamber music room will be facing the future highrises of the Binckhorst. The orientation of the theatre hall is not relevant and therefore undetermined as this hall will not have any connection with the context.

10.07.
Set of photo's of the chosen orientation of the concert halls placed in the context model.

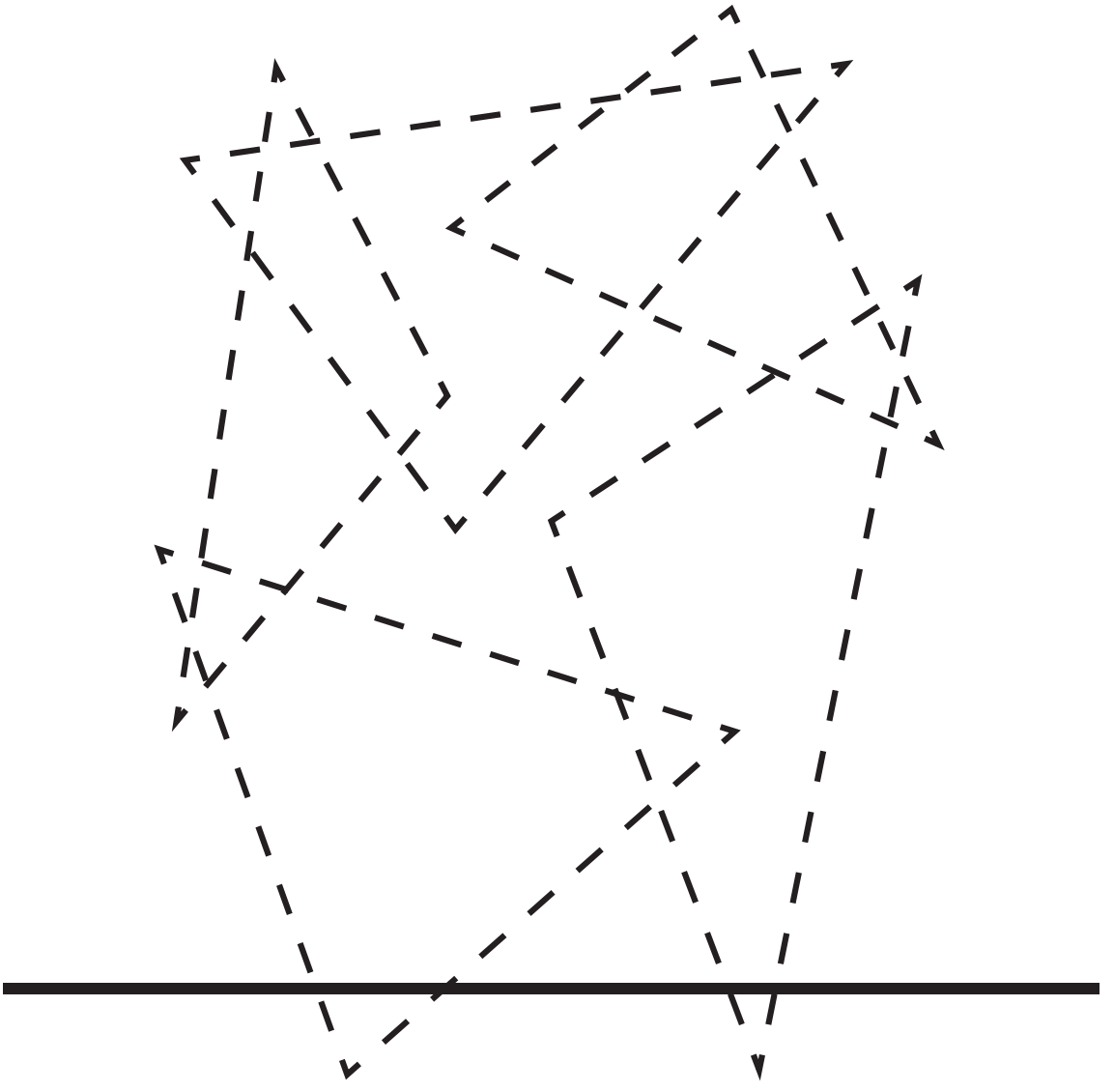
10.08.
The endless "festival terrain" needs a skin.



ENCAPSULATE THE VOID

A building with an endless space is not feasable, therefore the endless festival space needs to be encapsulated to a space that has the comfort of an interior and that is necessary for experiencing the Music Marvel.

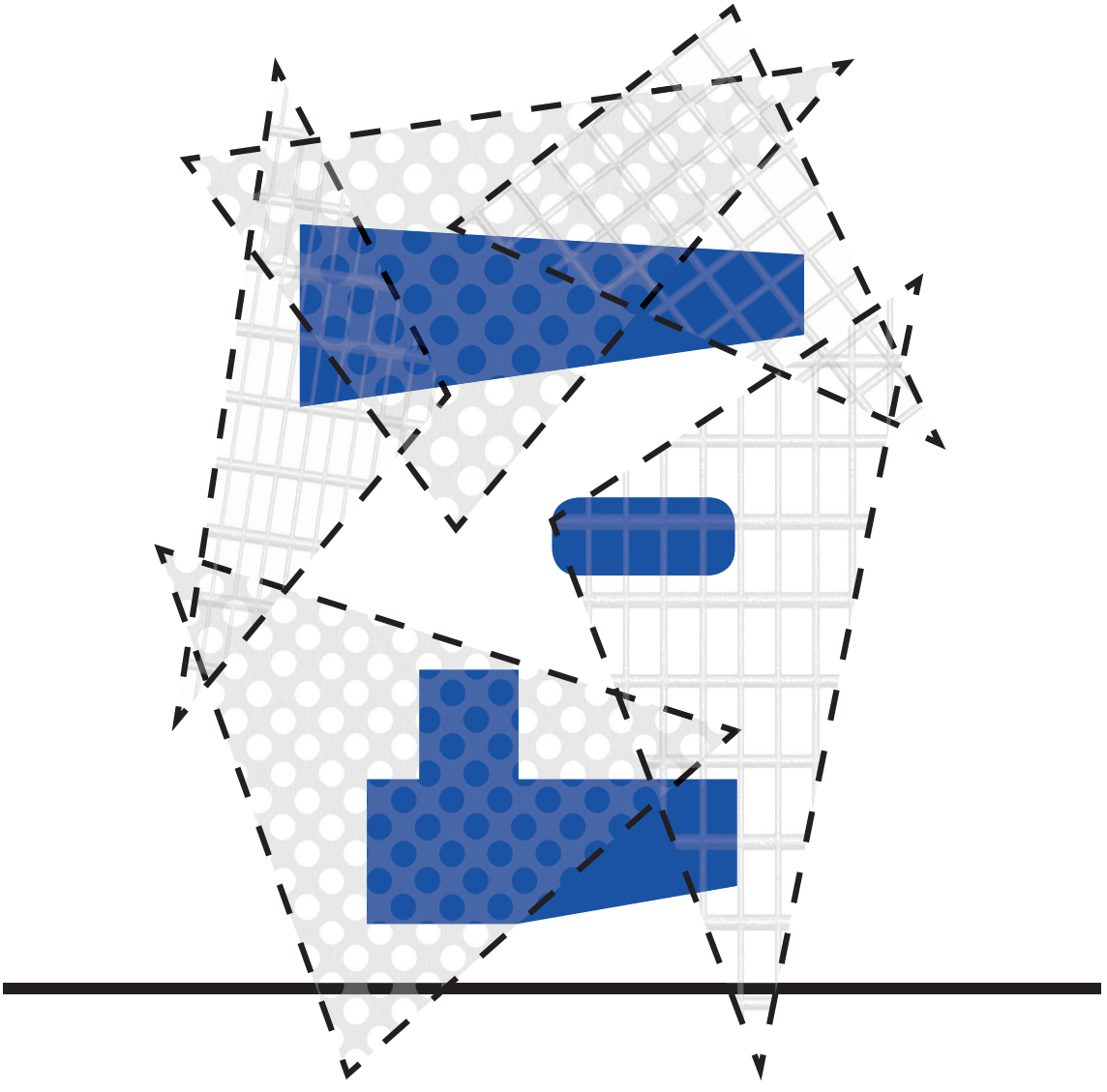
10.09.
Skin defined by triangles as reaction to the context.



SKIN REACTS TO CONTEXT

The rules to define the void are the skin of the building. Through FORM, it reacts to the context of The Hague: triangular shapes with the emphasis on verticality.

10.10.
Porous facade (no borders) with rhythmic look.

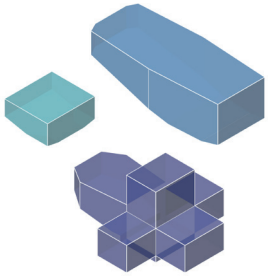


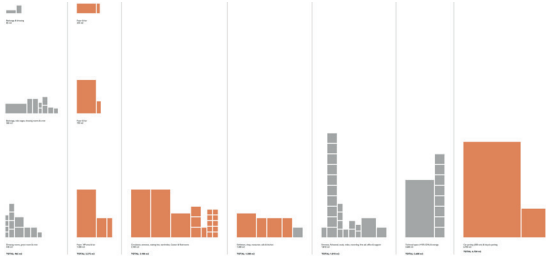
TRANSPARENT AND RHYTHMIC FACADE

The skin of the building covers the masses and the void as a piece of fabric that resembles the rhythms in music. It will be transparent, to allow for interaction between interior and exterior, and maintain the notion of a festival.

INGREDIENTS

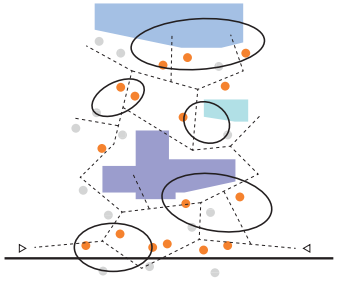
THE MAIN HALLS

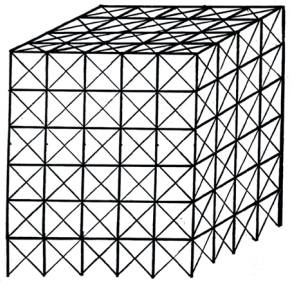




THE OTHER PROGRAM

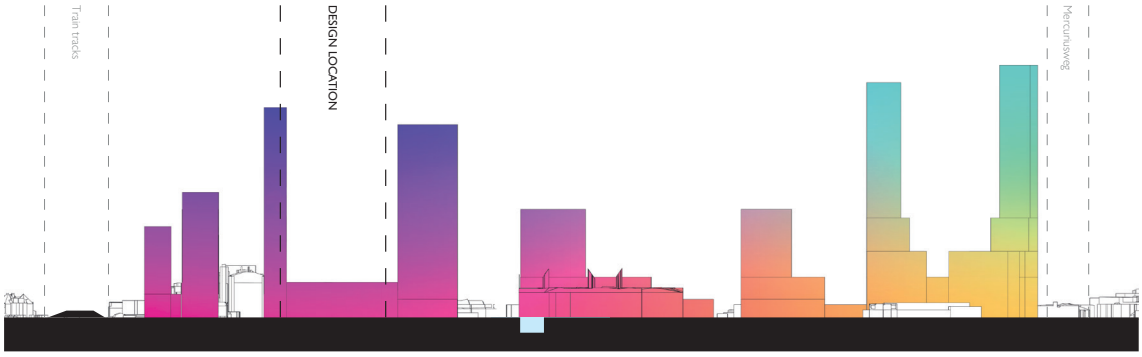
THE FESTIVAL SPACE



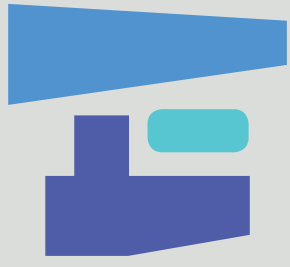


THE SUPERSTRUCTURE

THE MAIN HALLS



TOP: Concert hall
MIDDLE: Chamber music
BOTTOM: Theater hall



\+ Multi-purpose theater at the bottom
\+ Compact
\+ Largest volume on top

10.11. (left page, top)
First ingredient: the three halls.

10.12. (left page, second)
Second ingredient: all the other program.

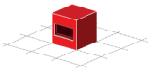
10.13. (left page, third)
Third ingredient: the festival space.

10.14. (left page, bottom)
All ingredients combined are placed inside the superstructure.

10.15. (top)
Need for stacking and orientation towards views due to large and interesting context.

10.16. (bottom)
Chosen stacking configuration.

THE OTHER PROGRAM



01. 4 x 4 x 4 m.



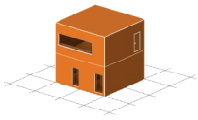
02. 4 x 4 x 4 m.



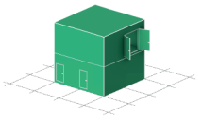
03. 4 x 4 x 4 m.



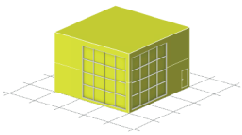
06. 8 x 8 x 8 m.



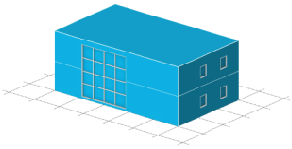
07. 8 x 8 x 8 m.



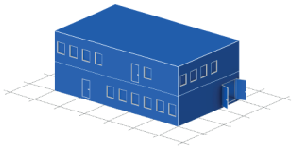
08. 8 x 8 x 8 m.



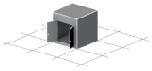
11. 12 x 12 x 8 m.



12. 20 x 12 x 8 m.



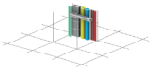
13. 20 x 12 x 8 m.



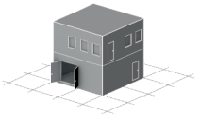
04. 4 x 4 x 4 m.



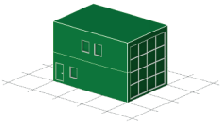
05. 4 x 4 x 4 m.



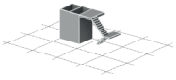
A. 4 x 4 x 4 m.



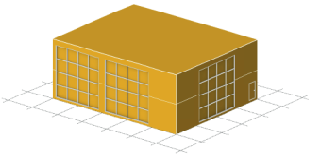
09. 8 x 8 x 8 m.



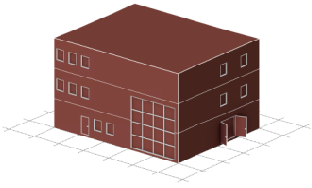
10. 12 x 8 x 8 m.



B. 8 x 4 x 4 m.



14. 20 x 16 x 8 m.



15. 20 x 16 x 12 m.



C. 8 x 8 x 4 m.

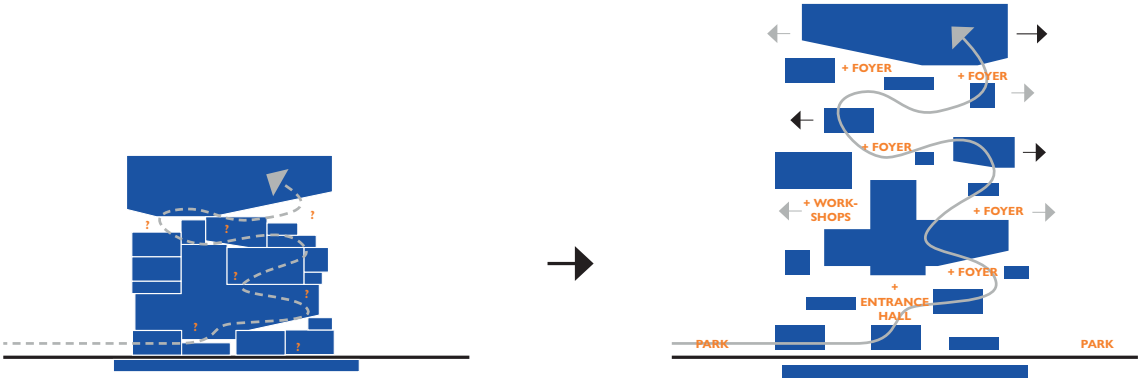
01. Ticket booth
02. Small toilet block
03. Small dressing room
04. Small storage
05. Wardrobe
06. Bar (bottom) + toilet block (top)
07. Bar (top) + toilet block (bottom)
08. Large dressing room
09. Office + storage + tech. space
10. VIP room + crew area

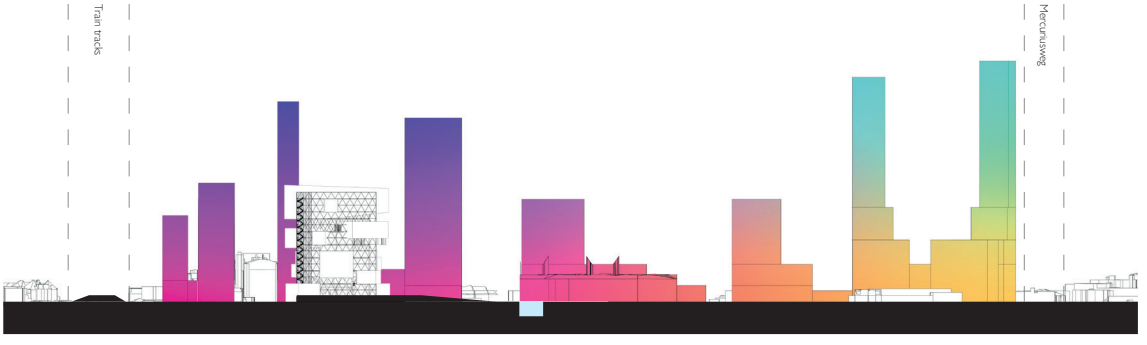
11. Cafe
12. (Record) shop
13. Office
14. Restaurant
15. Rehearsal space + recording studio's

A. Technical shaft (installations)
B. Evacuation stairs + lifts
C. Buffer tank

10.17.
Overview of all other program translated into standardized blocks that fit in the superstructure.

THE FESTIVAL SPACE



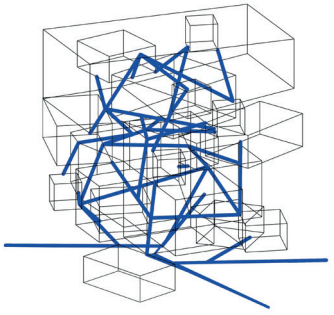


10.18. (top)
No space in between the masses makes circulation and extra program impossible. Therefore, more space is created.

10.19. (bottom)
More space means more height and more prominence, which is fine because of the large and vibrant context.

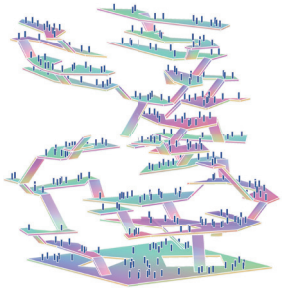
10.20. (right page)
Scheme explaining the creation of the festival terrain. User flows within the building define where paths and platforms are created. Together with the halls this forms the complete festival.

Analysis of user flows between program (volumes)



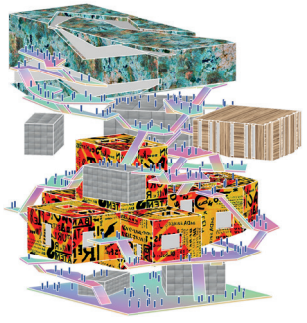


Flows translated into festival terrain: wandering around





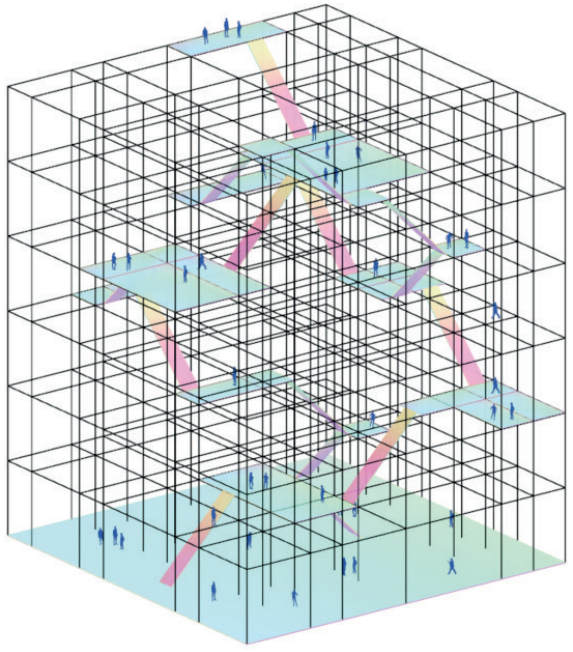
The halls are an integrated part of the festival terrain













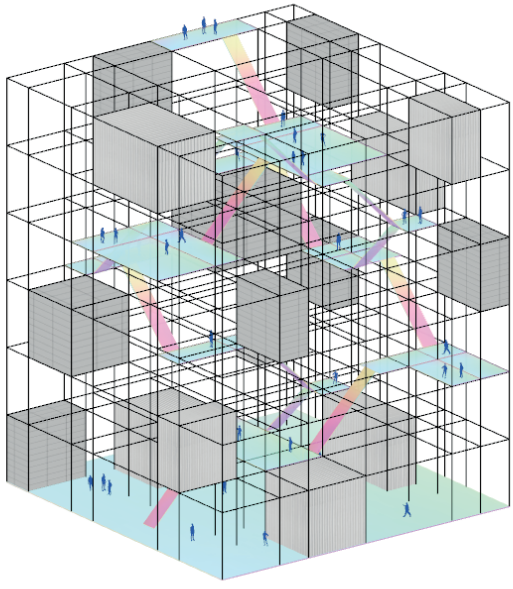


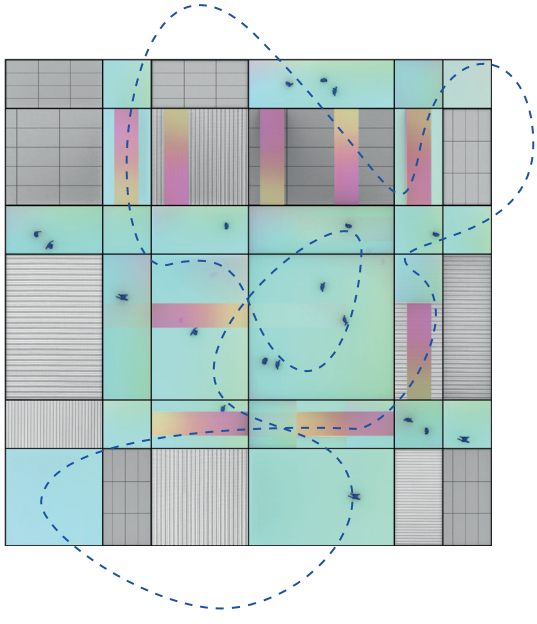






10.21.
Possible activites to be placed everywhere in the festival terrain.



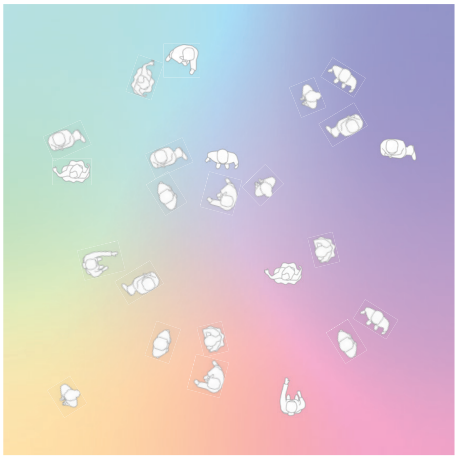


10.22. (top)
Scheme explaining orthogonal frame with boxes and space in between.

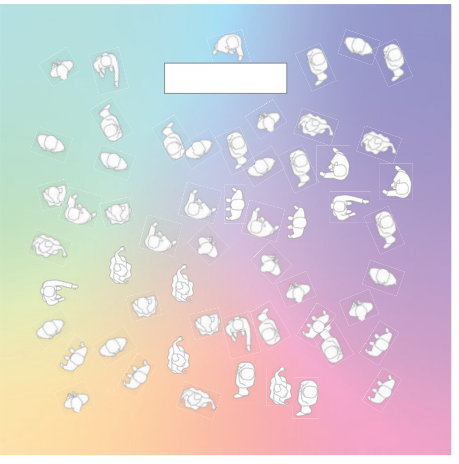
10.23. (bottom)
Top view of this scheme, although the orthogonal grid might seem boring, due to the complexity of the placement of masses, interesting spaces emerge.

FESTIVAL TERRAIN - MULTIPLICITY

FOYER



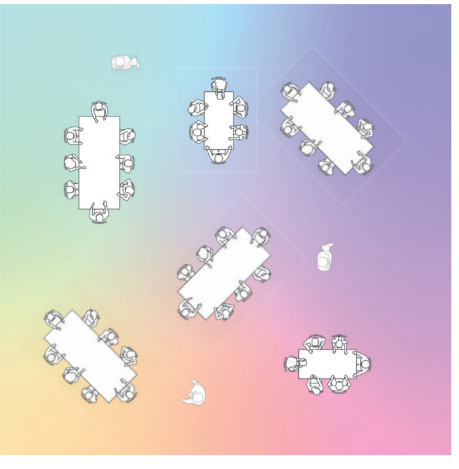
PARTY



PLAYGROUND



RESTAURANT

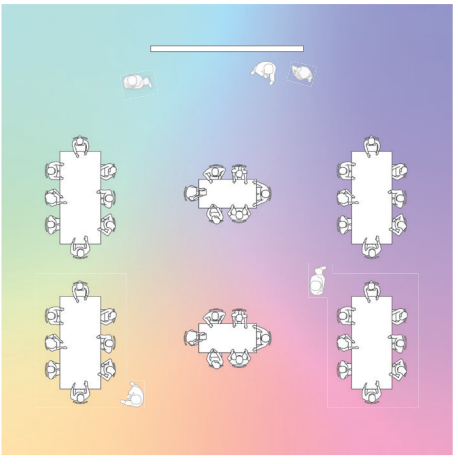


10.24. t/m 10.27.
Possible activities for the festival terrain.

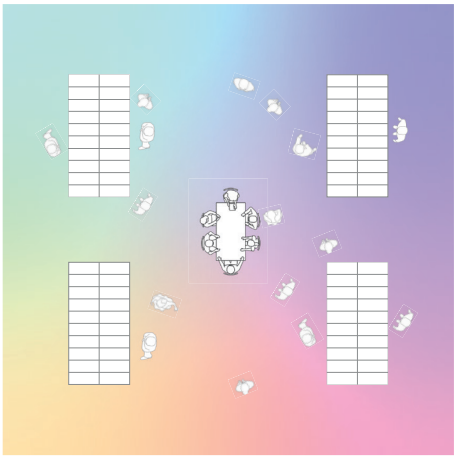
CONFERENCE



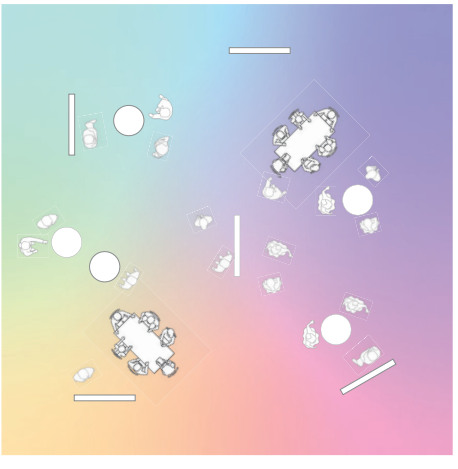
WORKSHOPS



MARKET



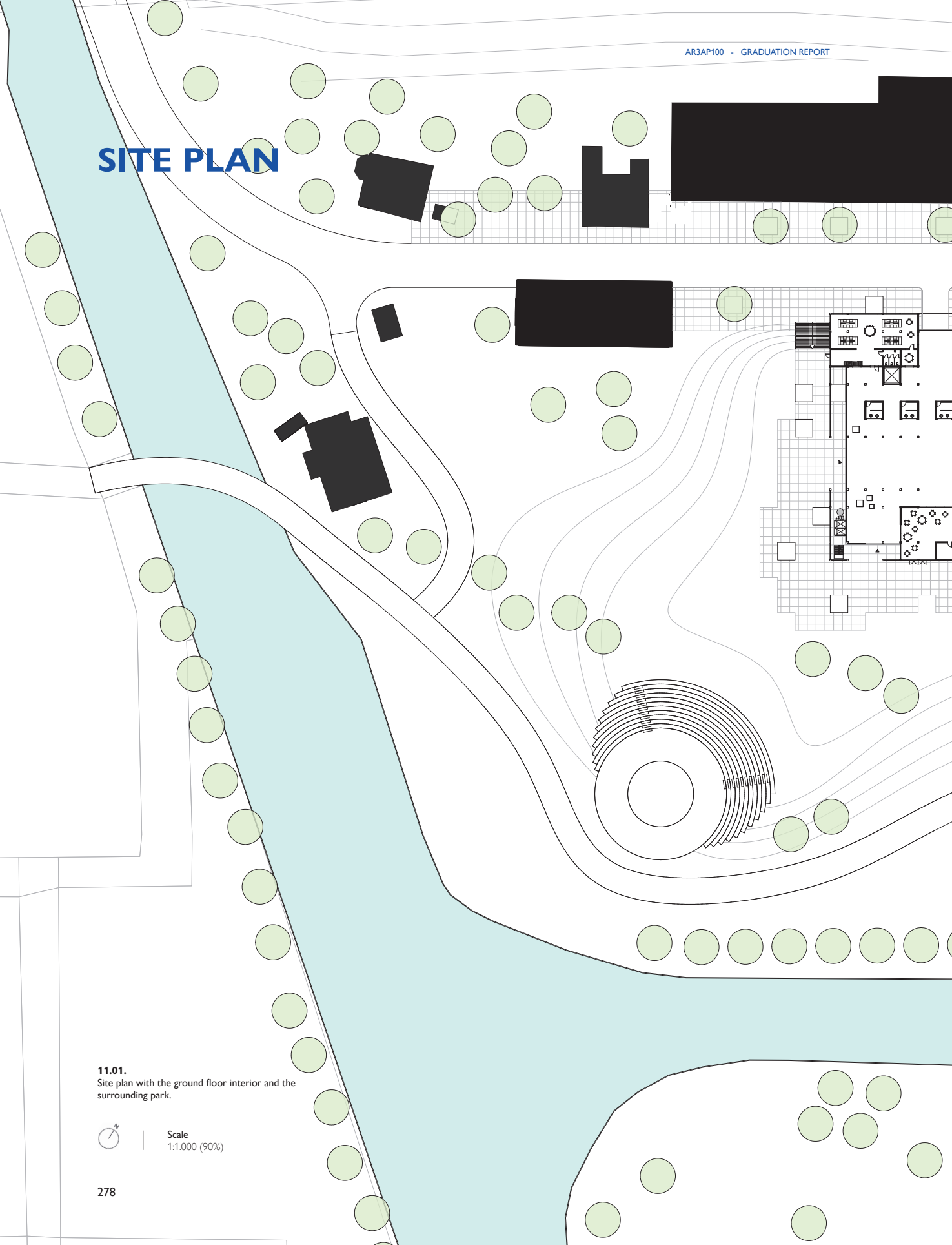
BUSINESS FAIR



10.28. t/m 10.31.
Possible activities for the festival terrain.

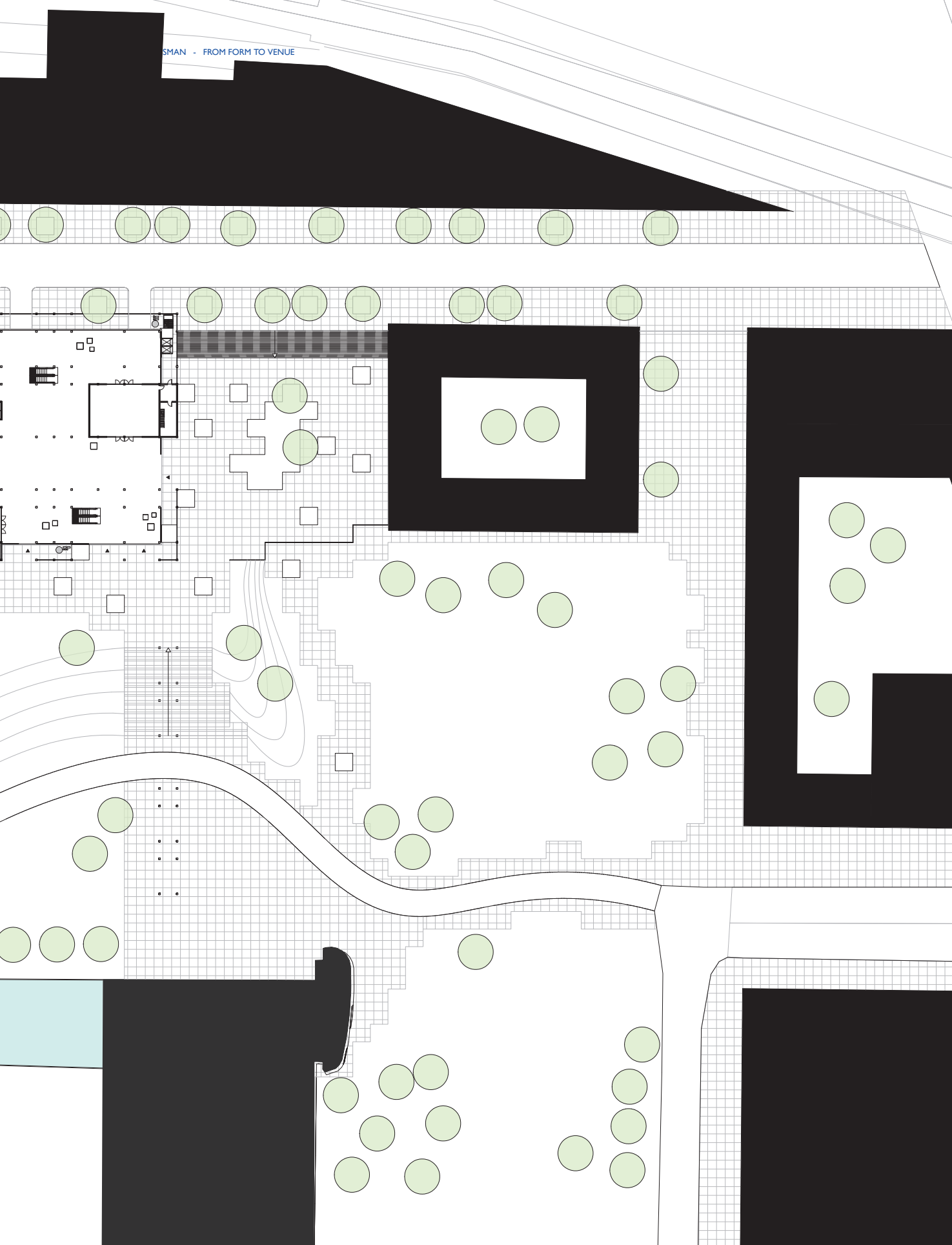
11. THE DESIGN

SITE PLAN

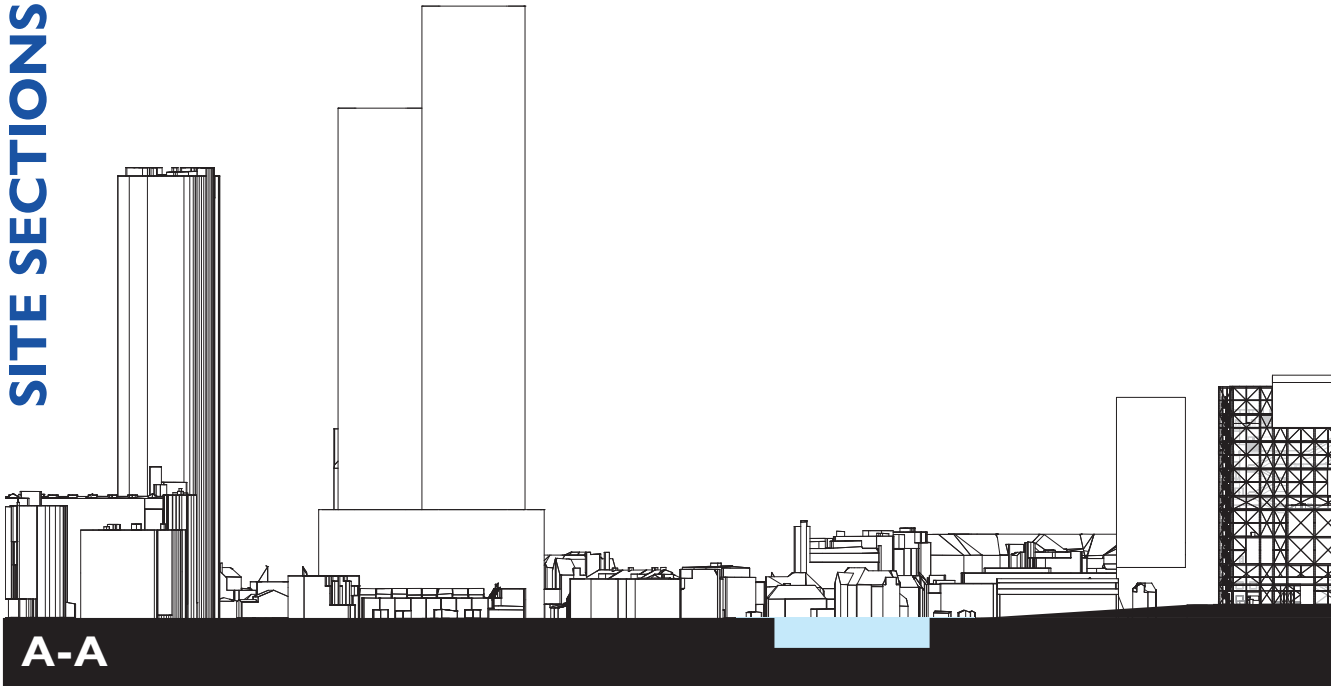


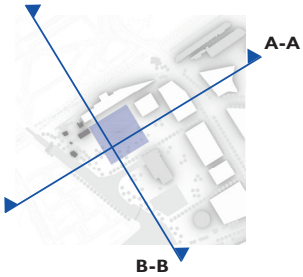
11.01.
Site plan with the ground floor interior and the surrounding park.

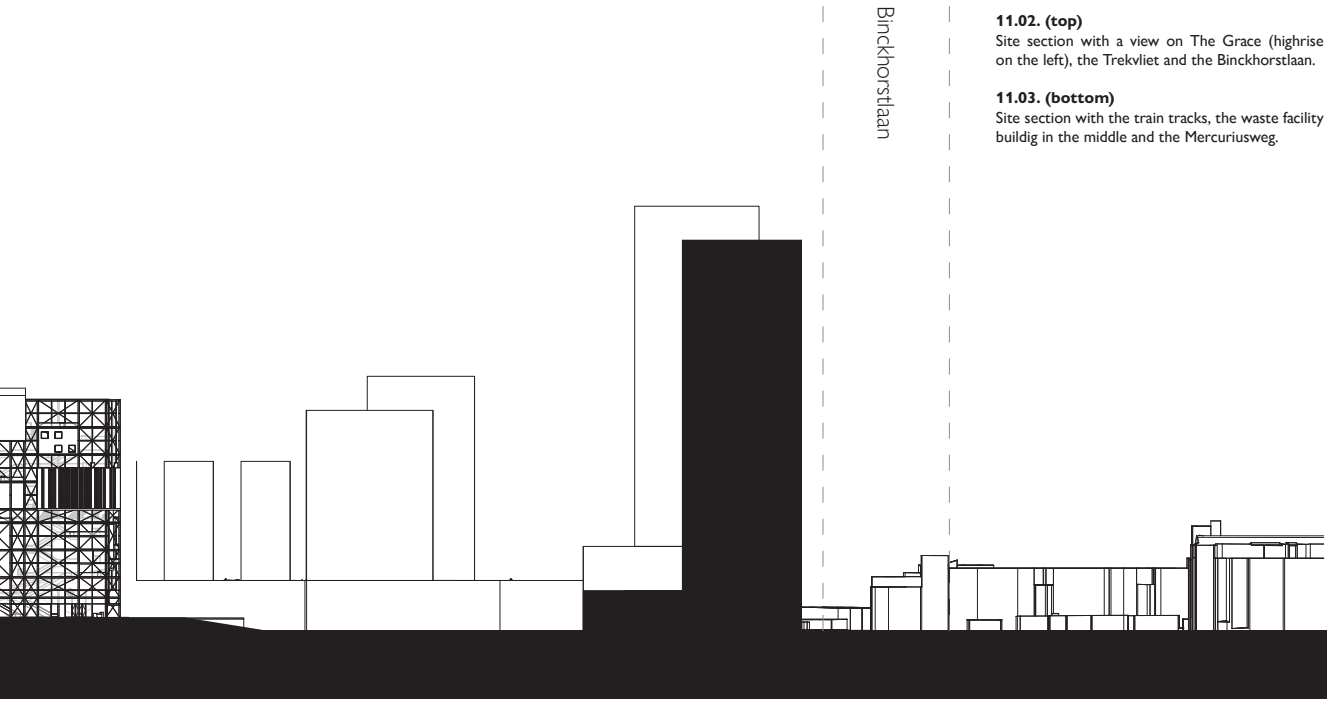
Scale
1:1.000 (90%)



SITE SECTIONS

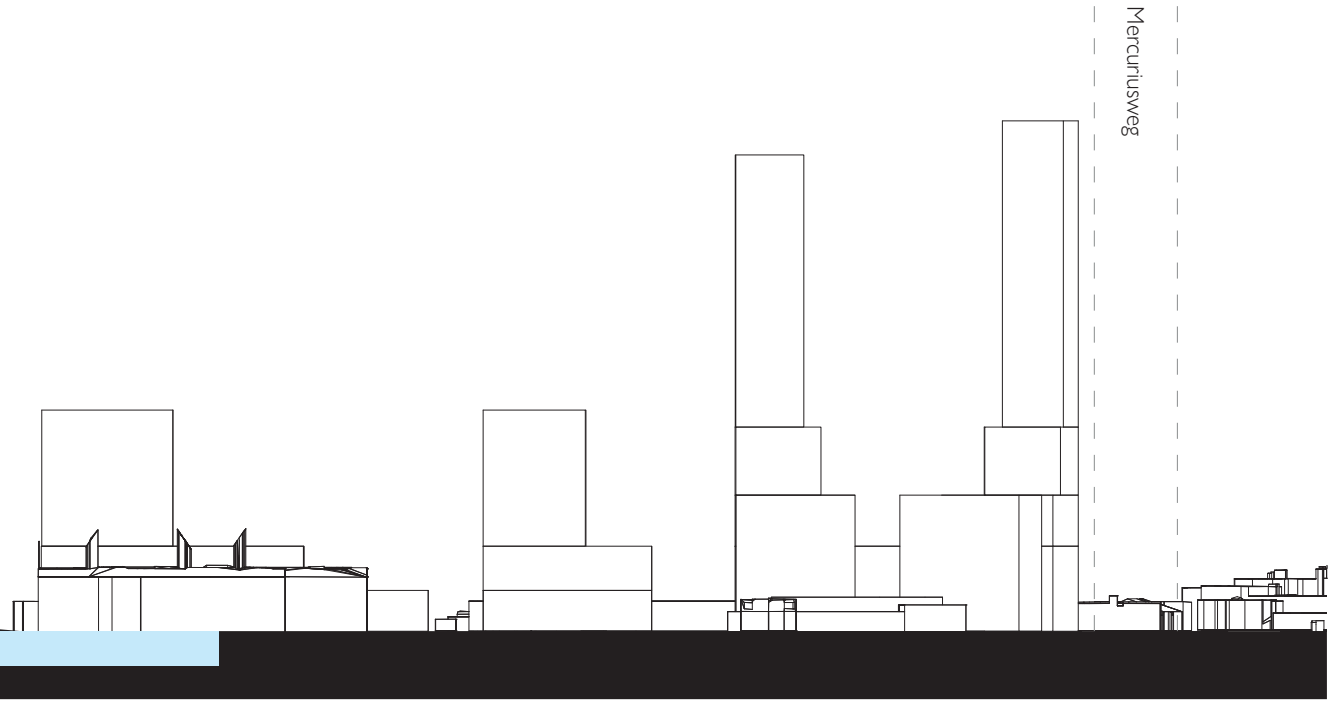






11.02. (top)
Site section with a view on The Grace (highrise on the left), the Trekvliet and the Binckhorstlaan.

11.03. (bottom)
Site section with the train tracks, the waste facility buildig in the middle and the Mercuriusweg.



Scale
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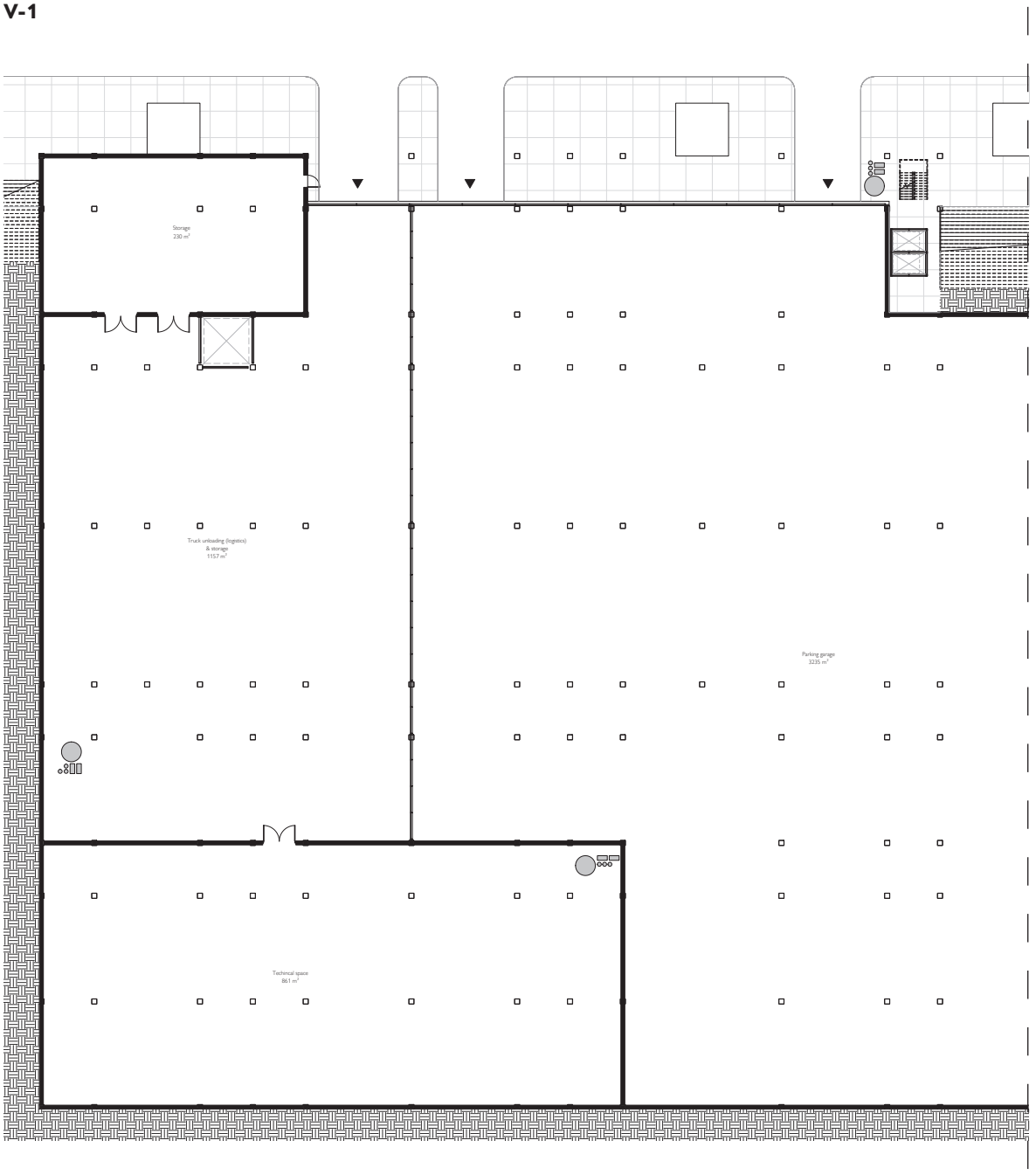
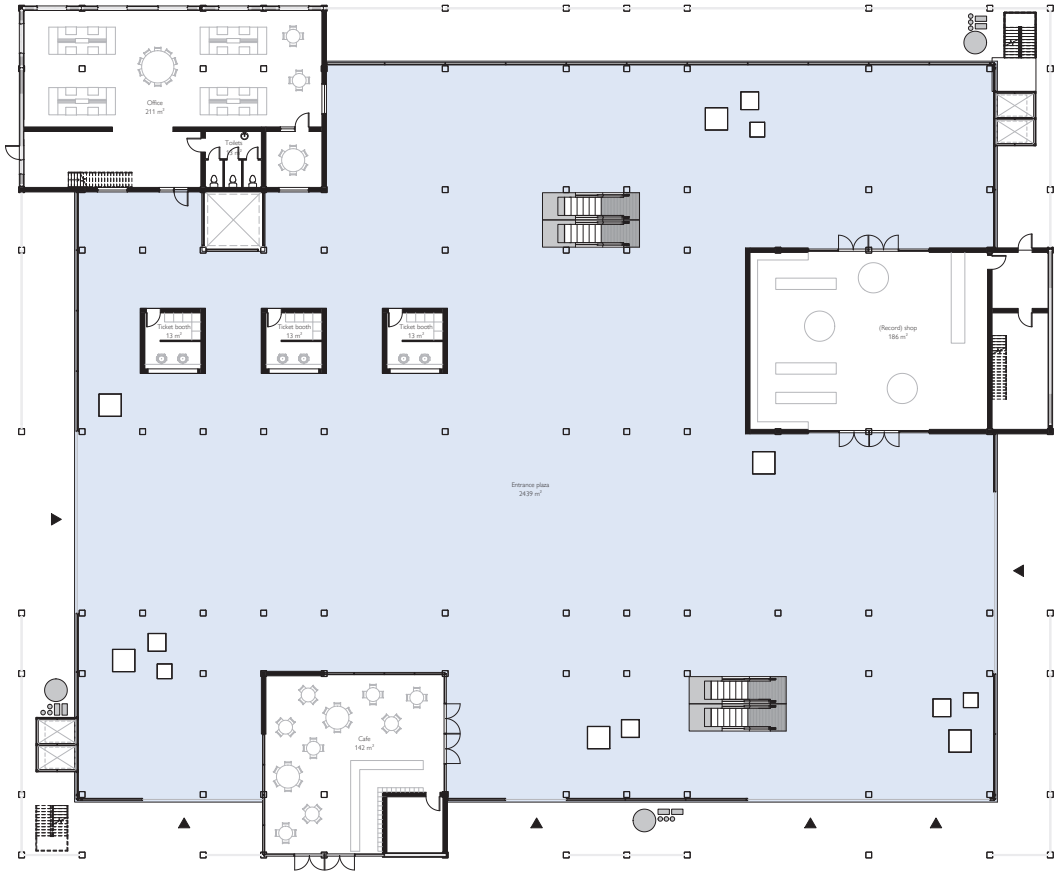
FLOOR PLANS

11.04.
Basement with indoor car parking.

V-1

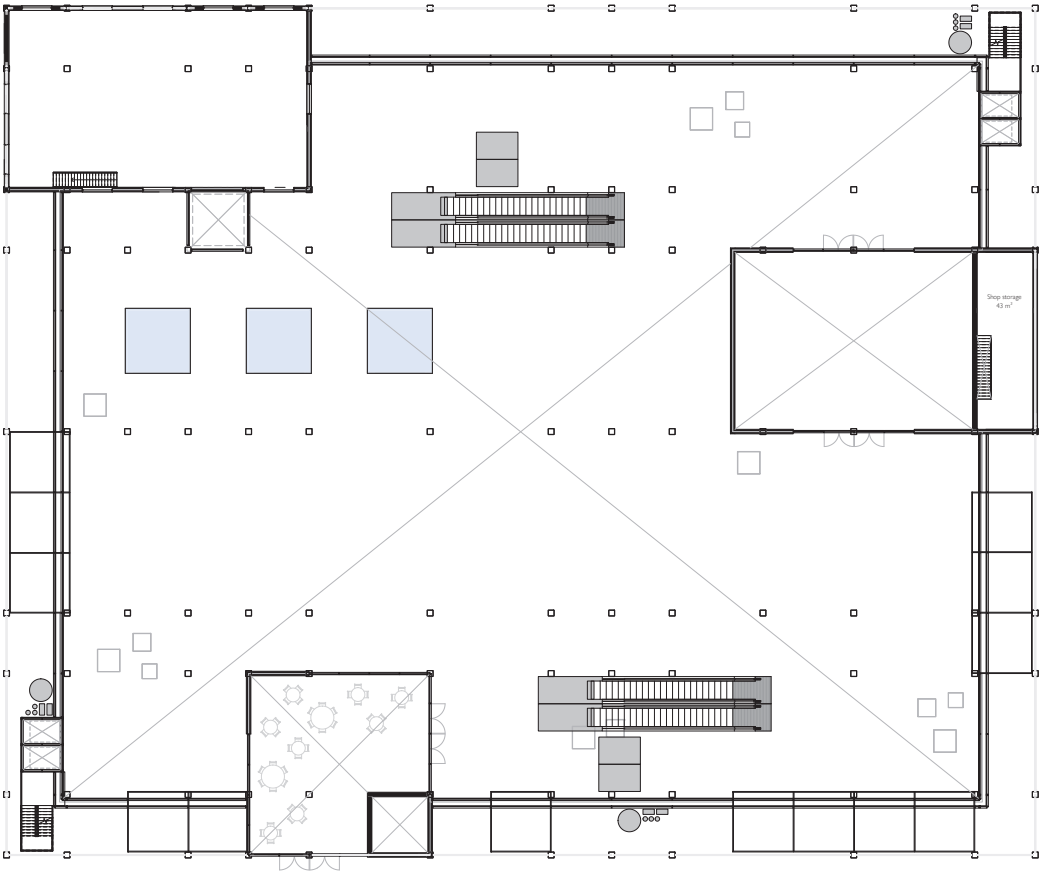




V00

11.05.
Ground floor with main entrances, cafe and shop.

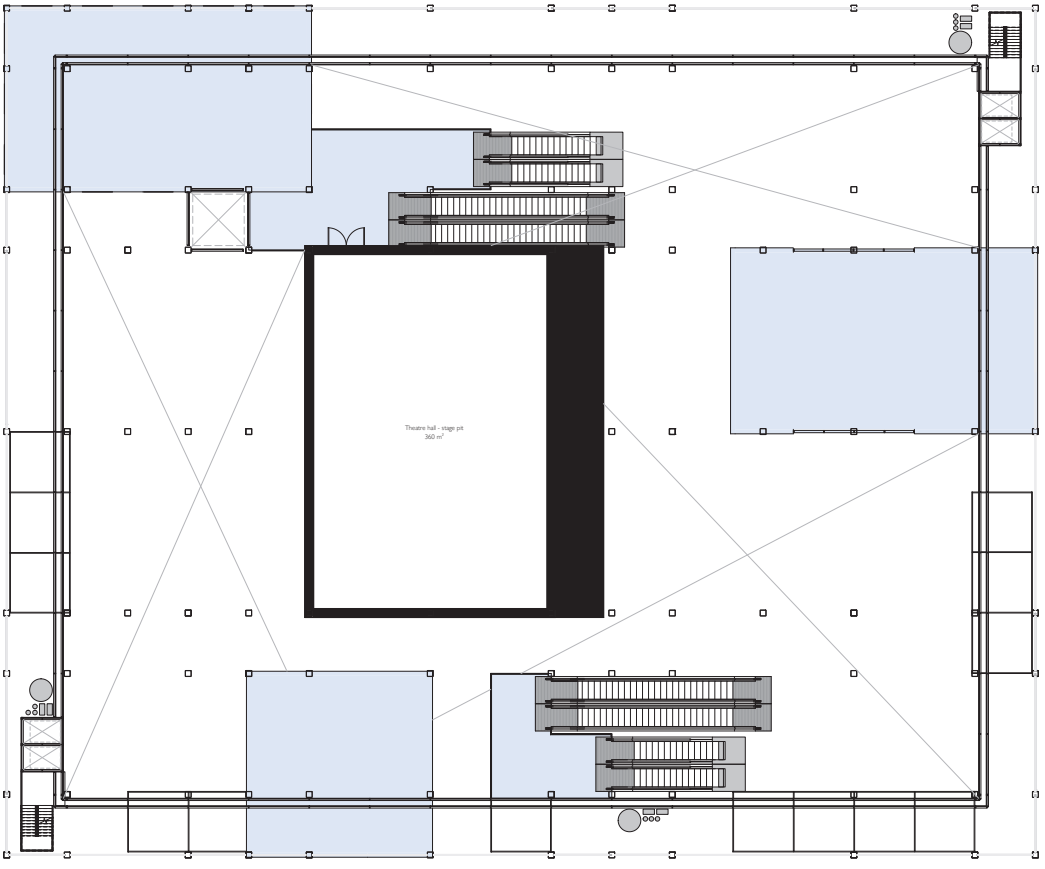
Scale
1:500



V01

11.06.
First floor, maily void for large entrance hall.

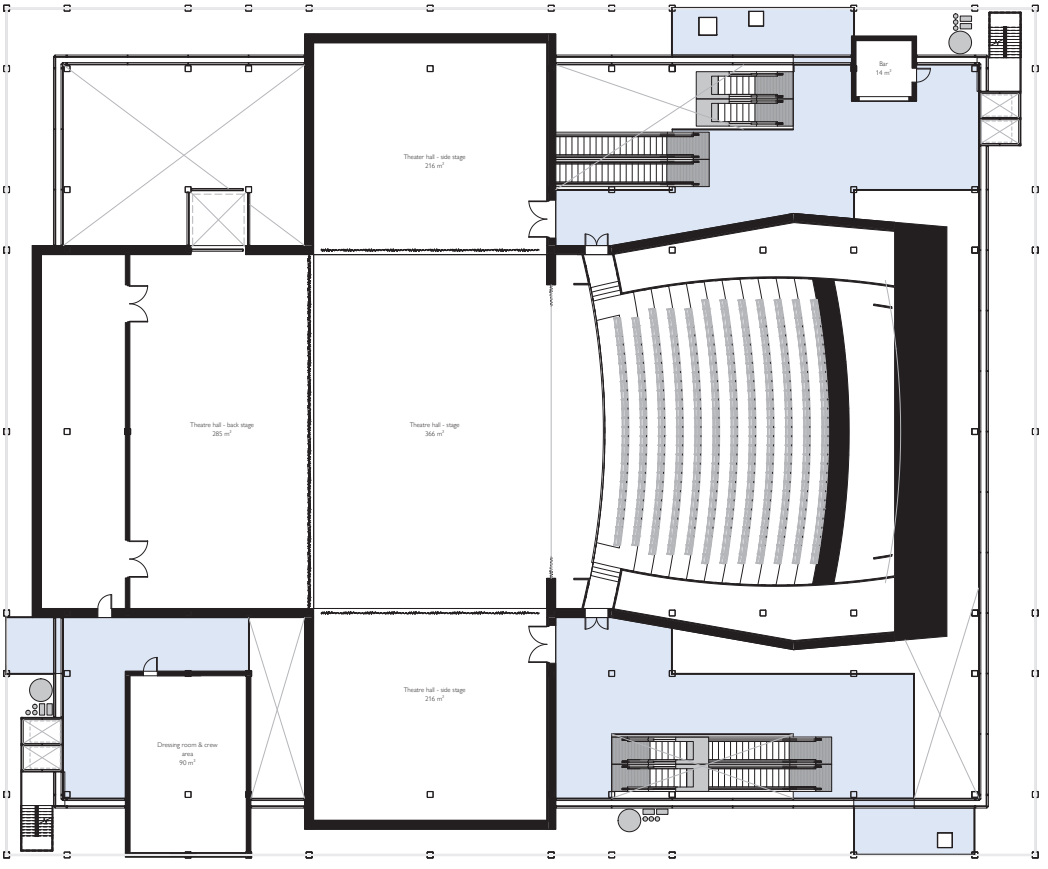
Scale
1:500



V02

11.07.
Second floor with theatre stage pit.

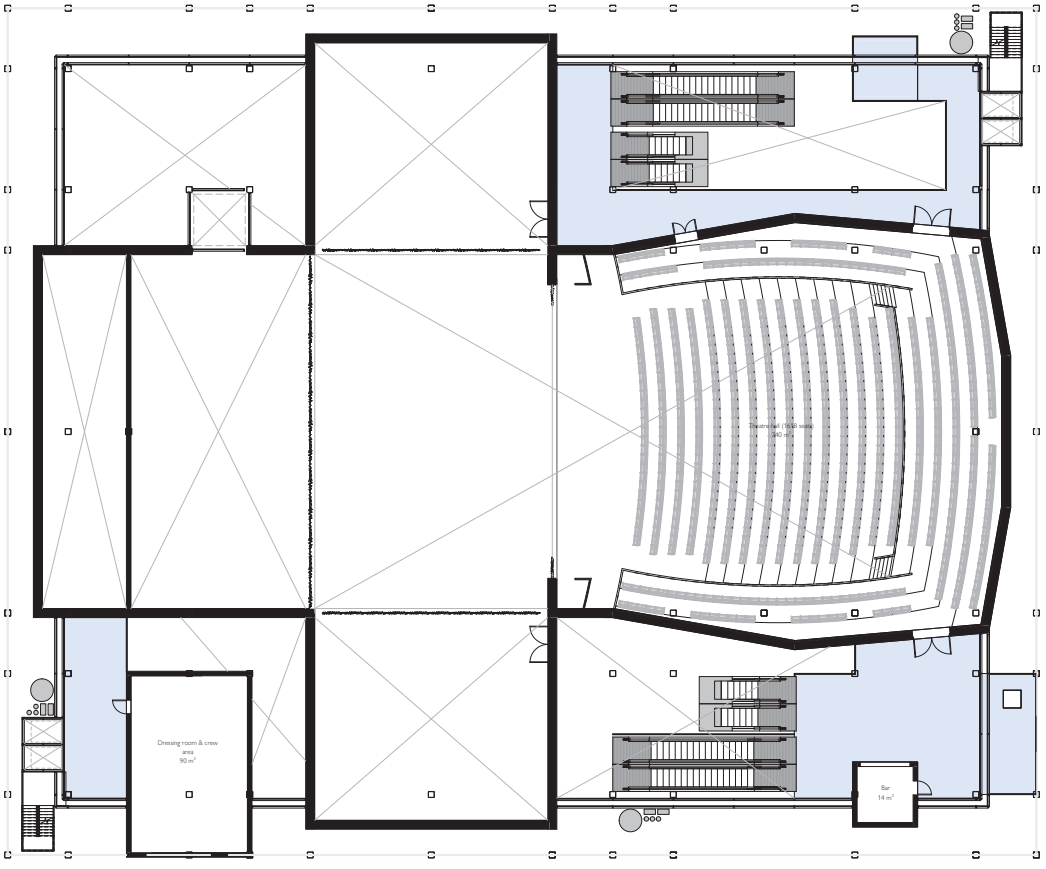
Scale
1:500



V03

11.08.
Third floor: theatre stage level.

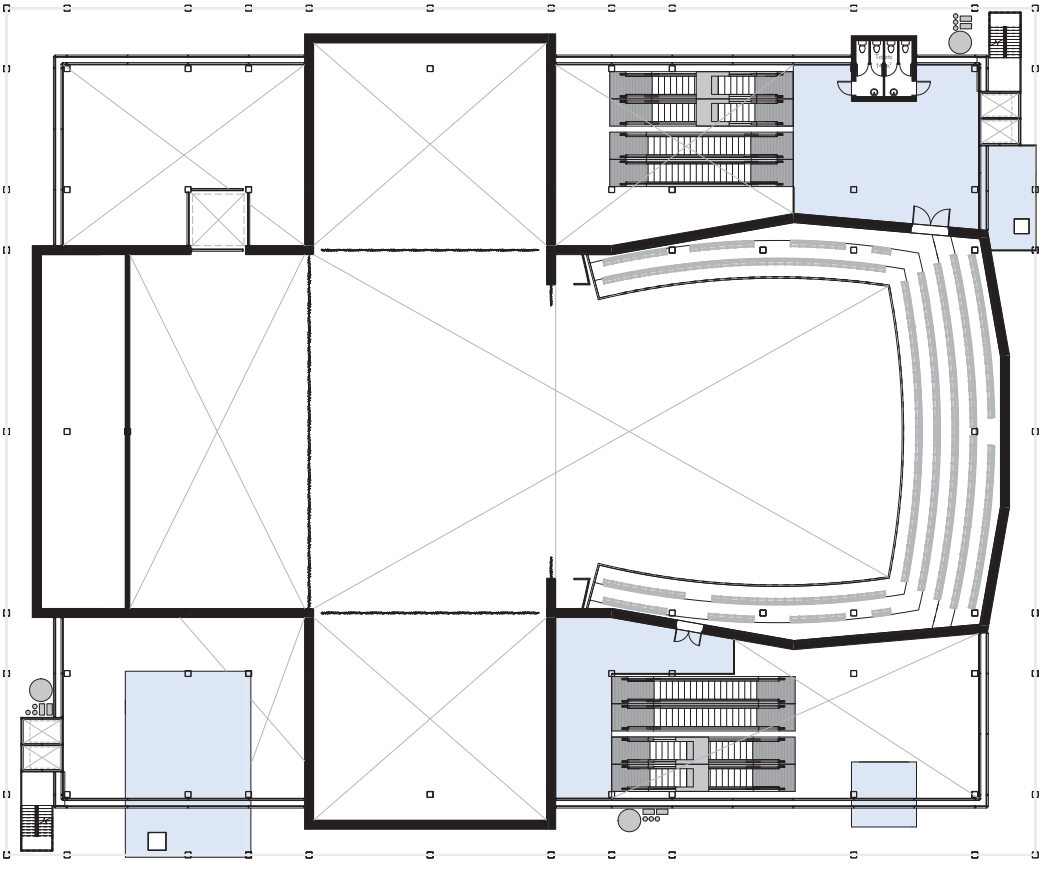
Scale
1:500



V04

11.09.
Fourth floor: theatre first row of balconies.

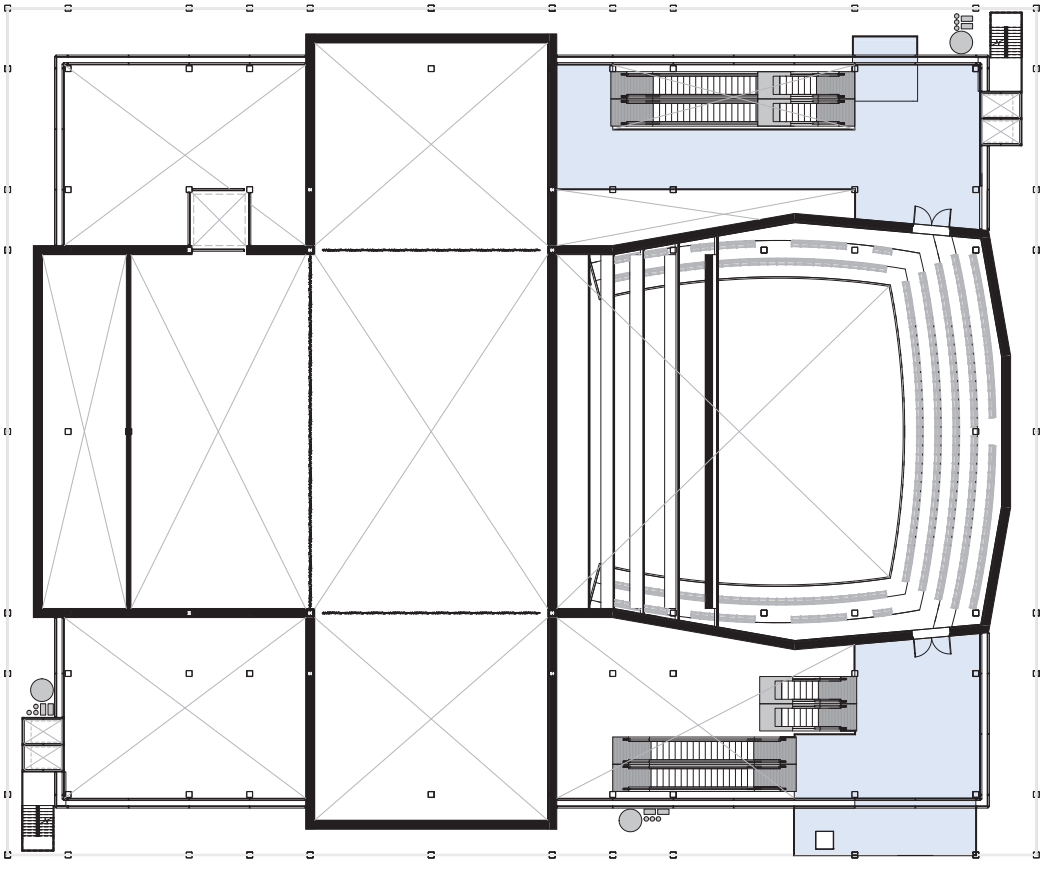
Scale
1:500



V05

11.10.
Fifth floor: theatre second row of balconies.

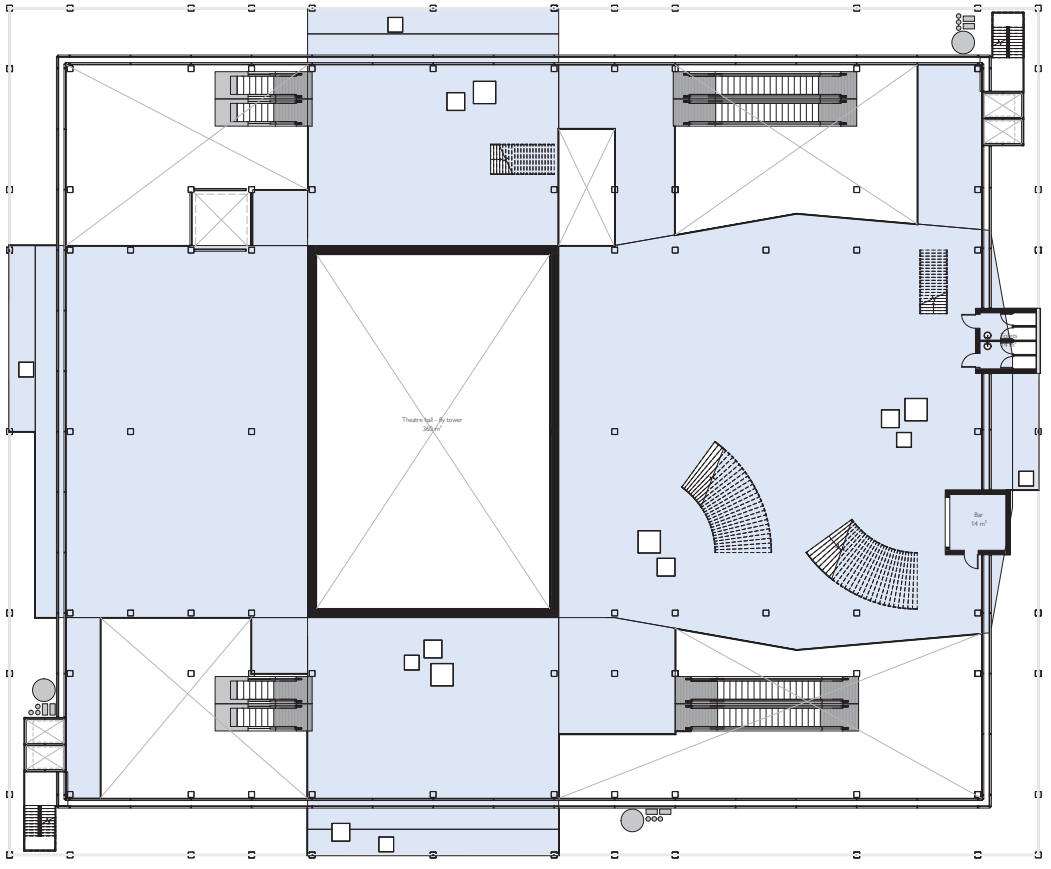
Scale
1:500



V06

11.11.
Sixth floor: theatre top row of balconies.

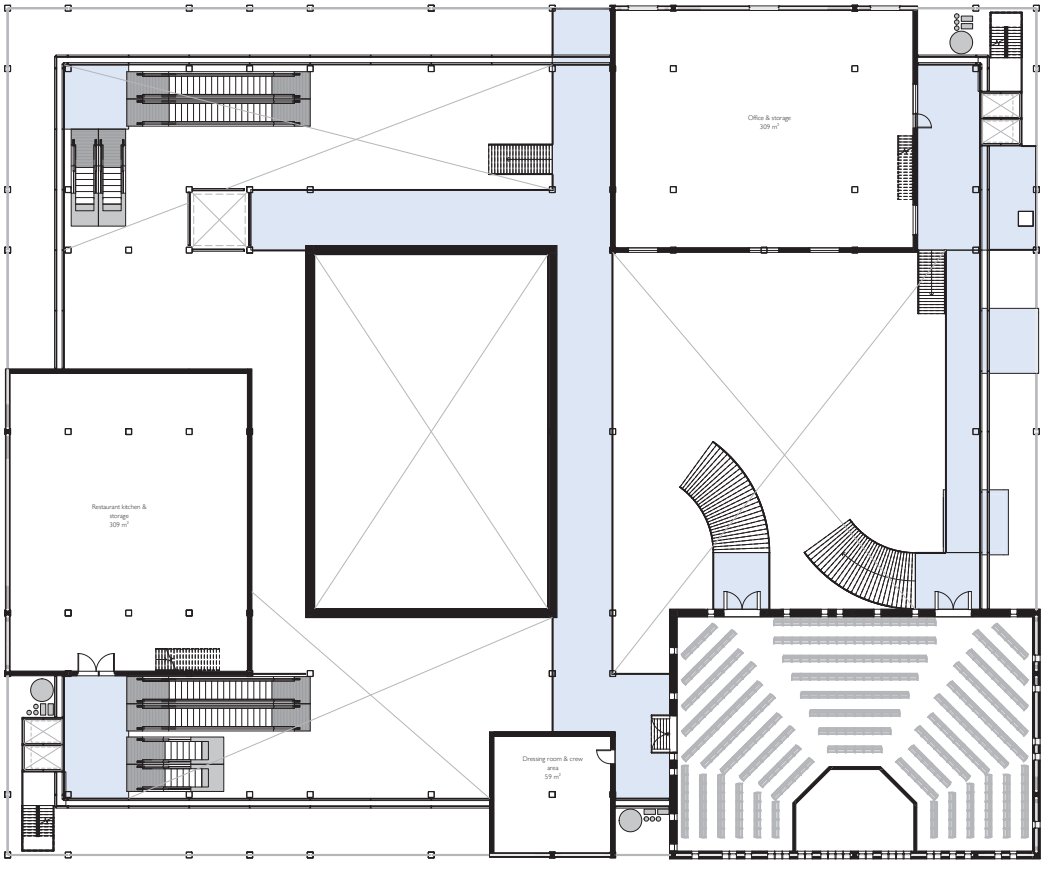
Scale
1:500



V07

11.12.
Seventh floor with large festival terrain.

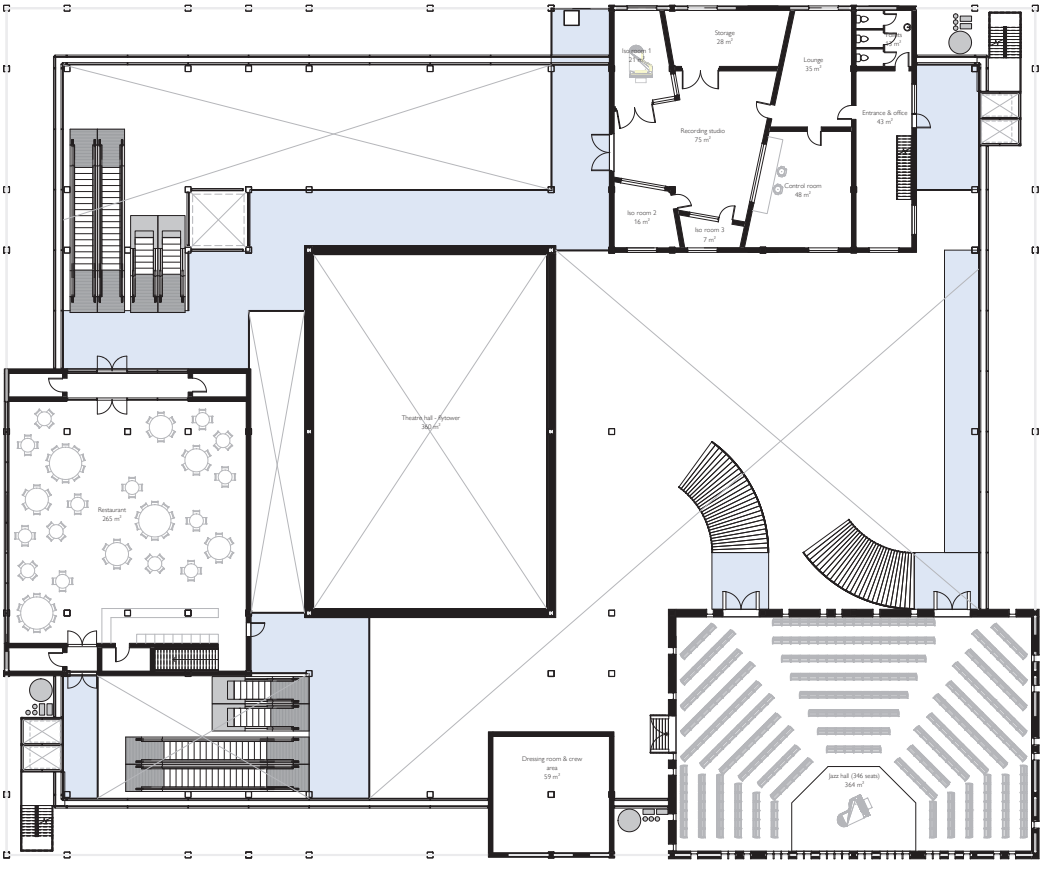
Scale
1:500



V08

11.13.
Eighth floor with jazz hall.

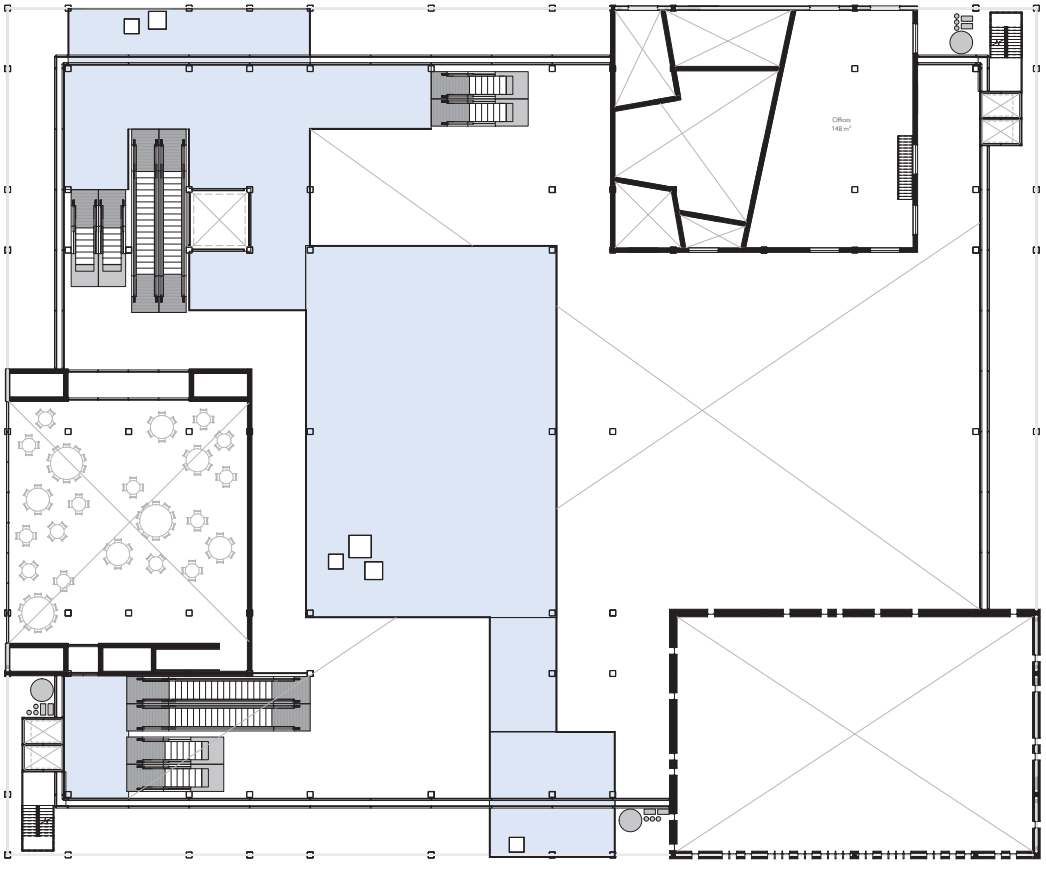
Scale
1:500



V09

11.14.
Ninth floor with jazz hall, restaurant and studio.

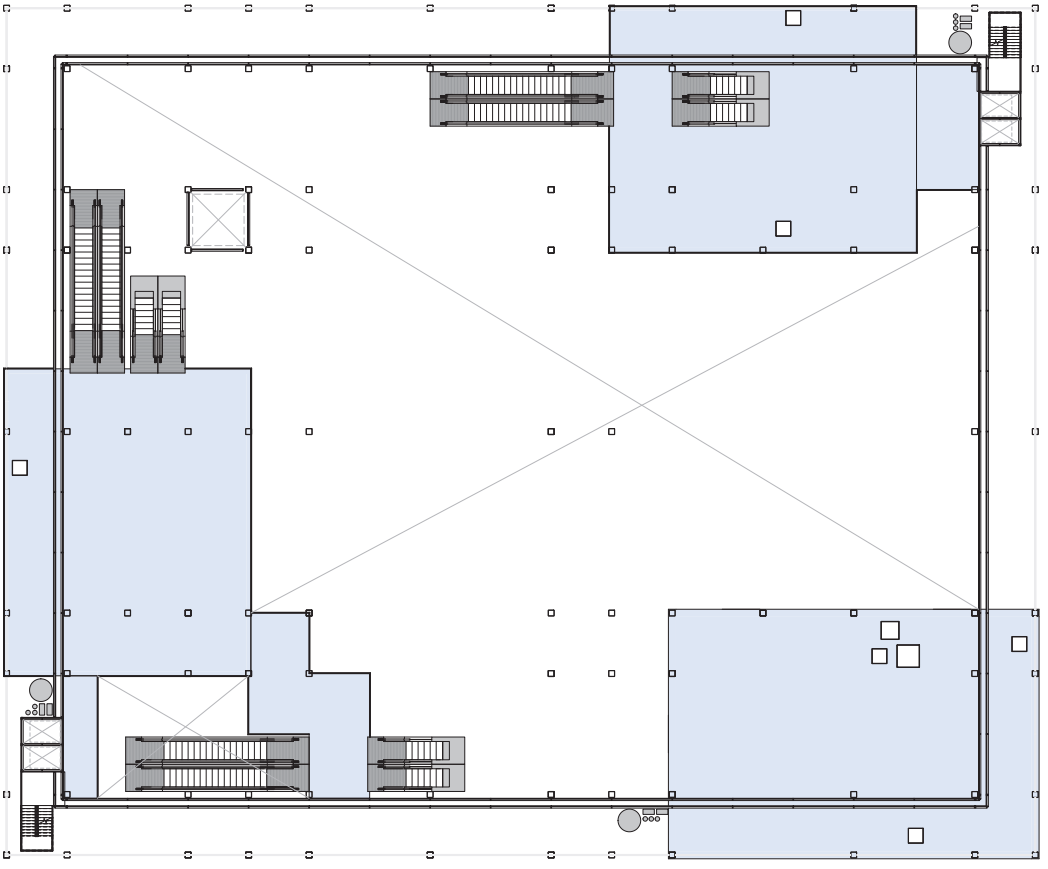
Scale
1:500



V10

11.15.
Tenth floor with jazz hall, restaurant and studio.

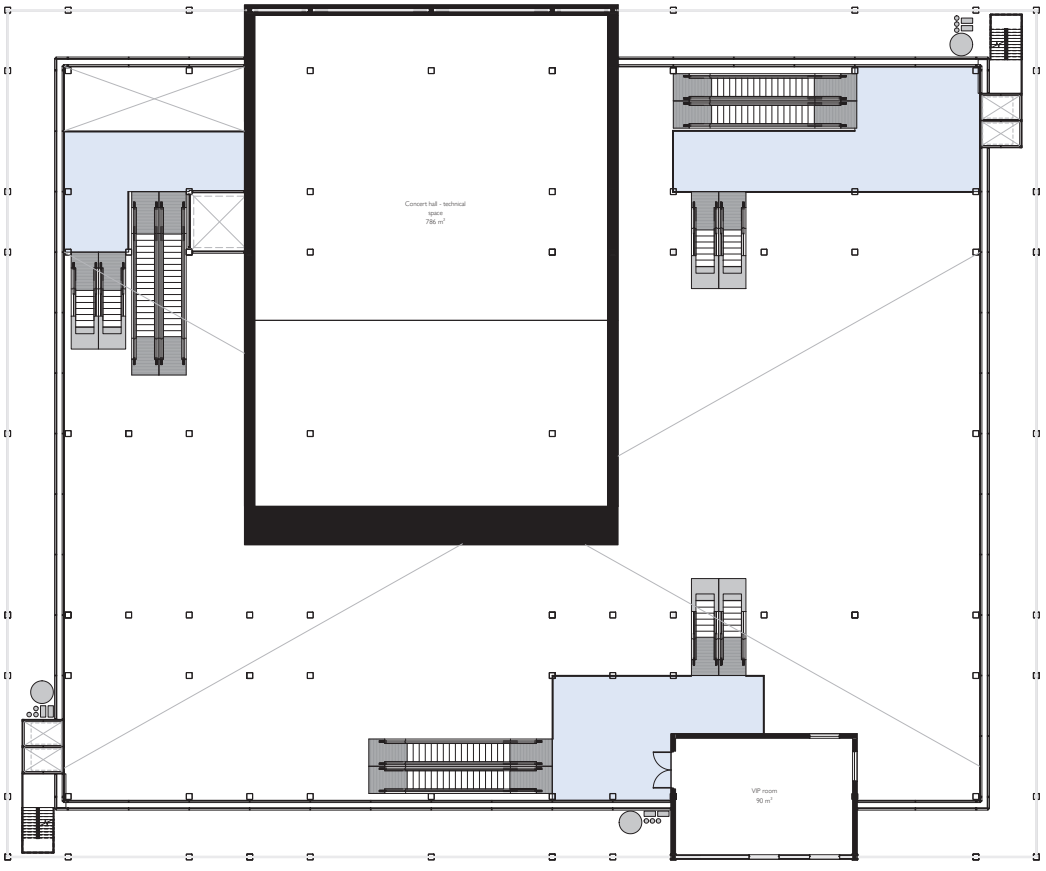
Scale
1:500



V11

11.16.
Eleventh floor with open space and festival terrain.

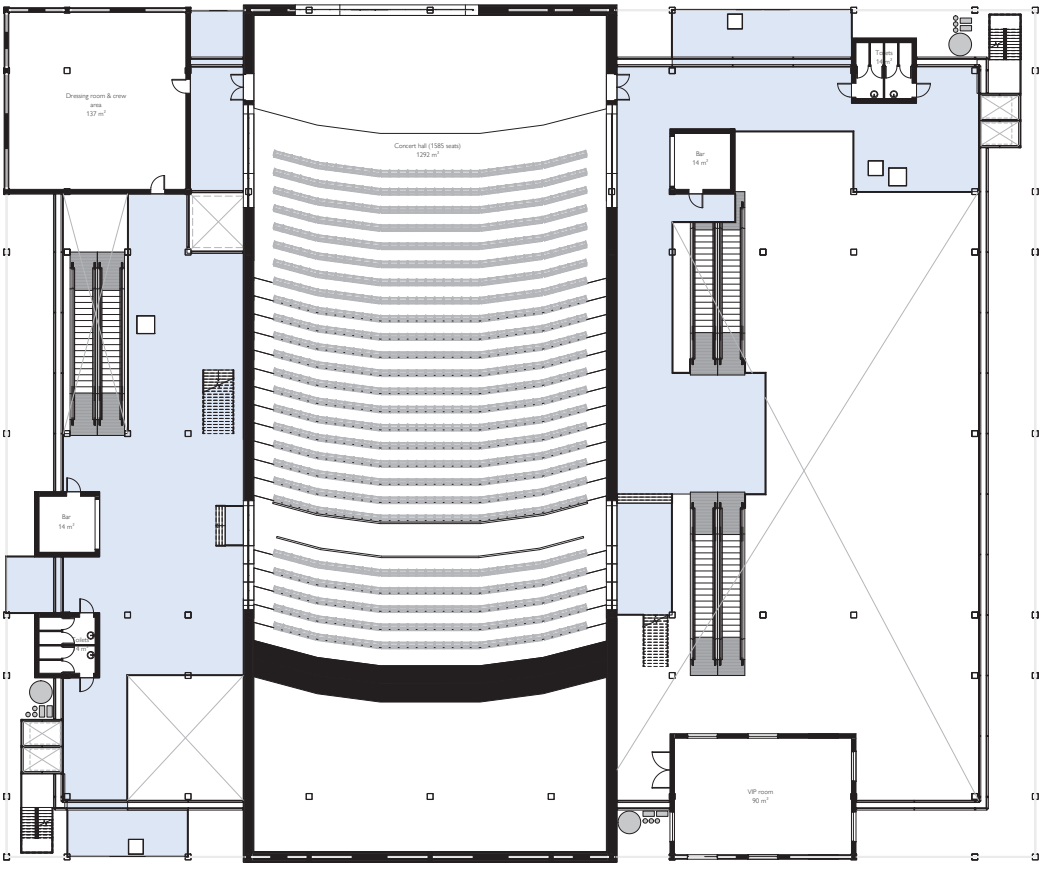
Scale
1:500



V12

11.17.
Twelfth floor with open space and technical space of concert hall.

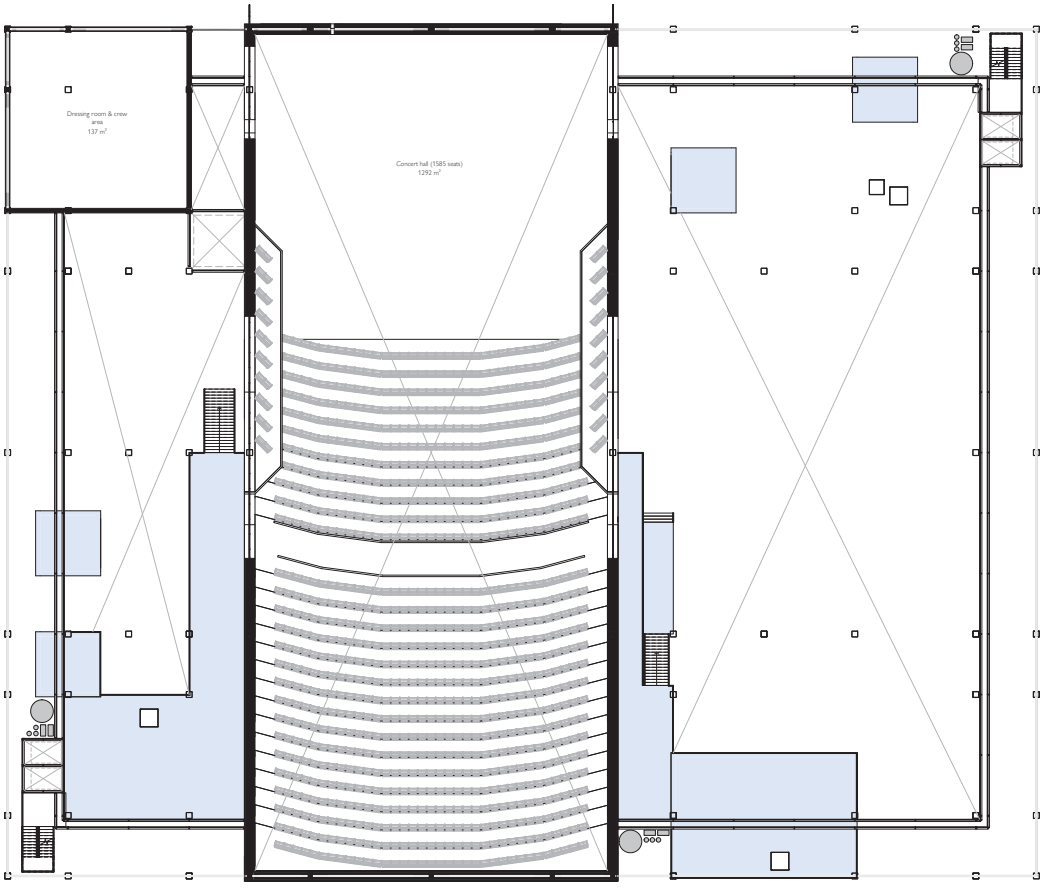
Scale
1:500



V13

11.18.
Thirteenth floor with concert hall stage level.

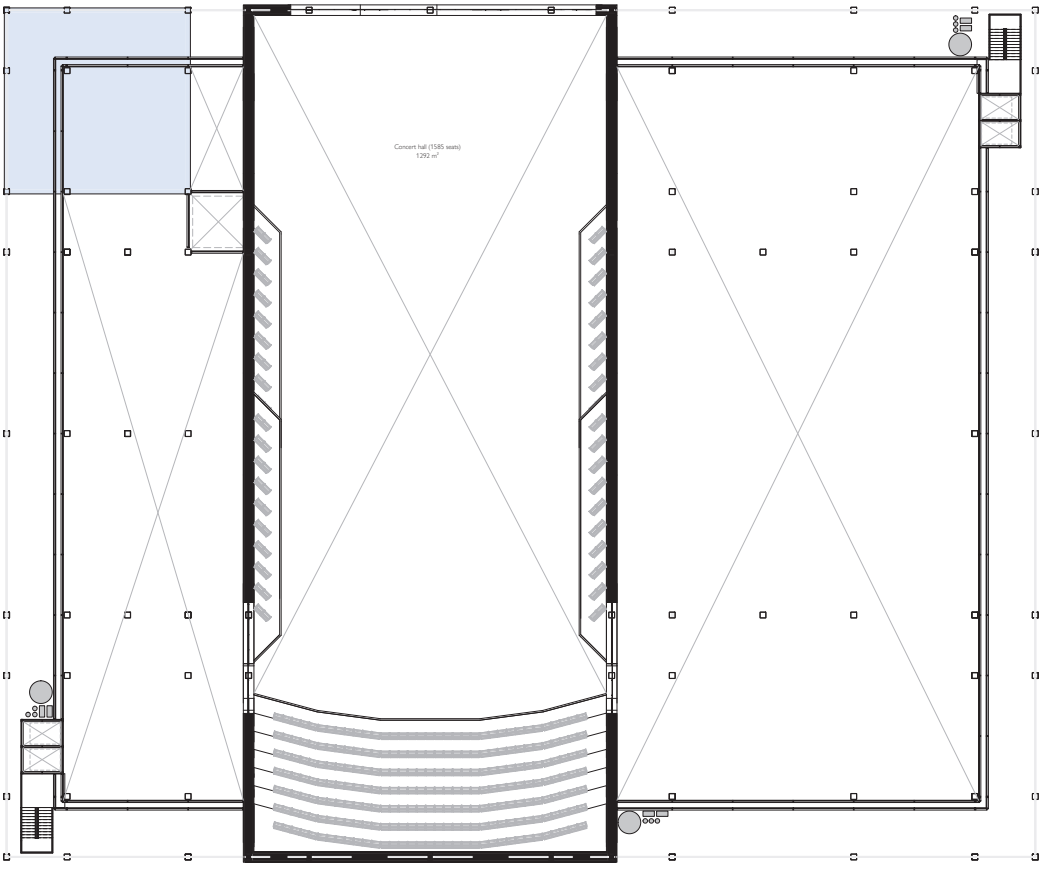
Scale
1:500



V14

11.19.
Fourteenth floor with concert hall balconies.

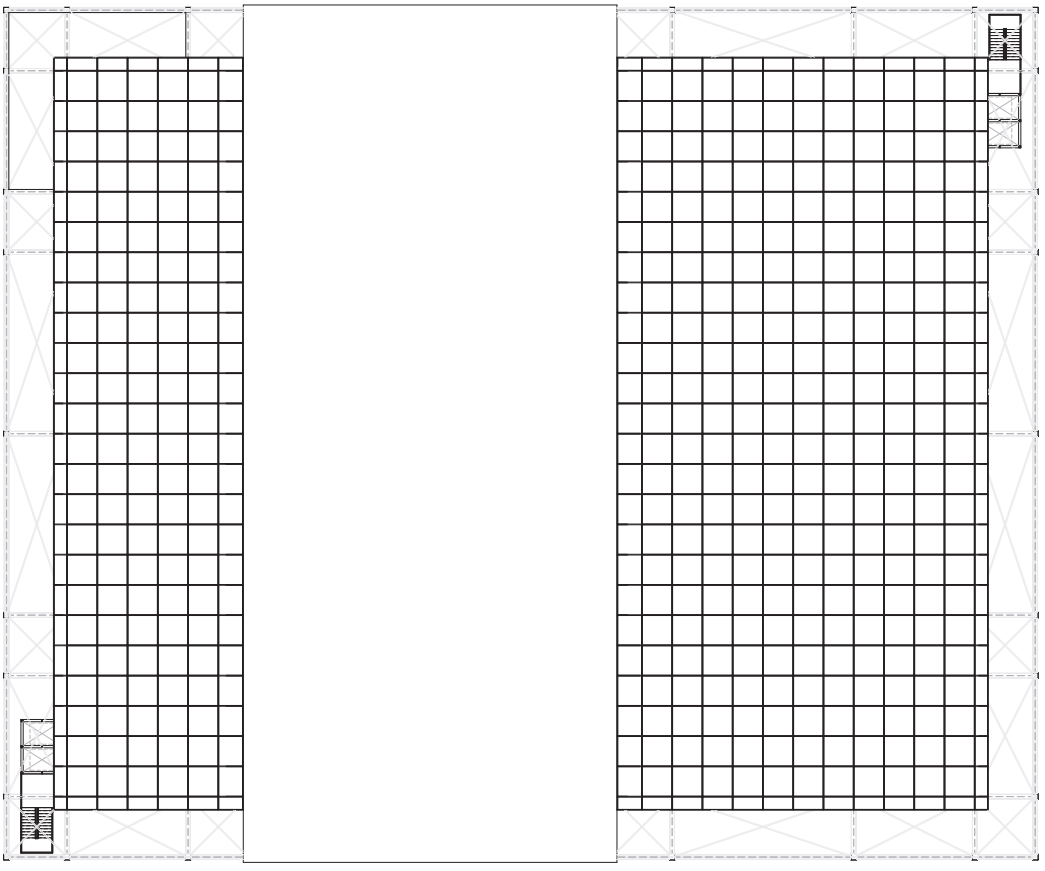
Scale
1:500



V15

11.20.
Fifteenth floor with concert hall balconies.

Scale
1:500

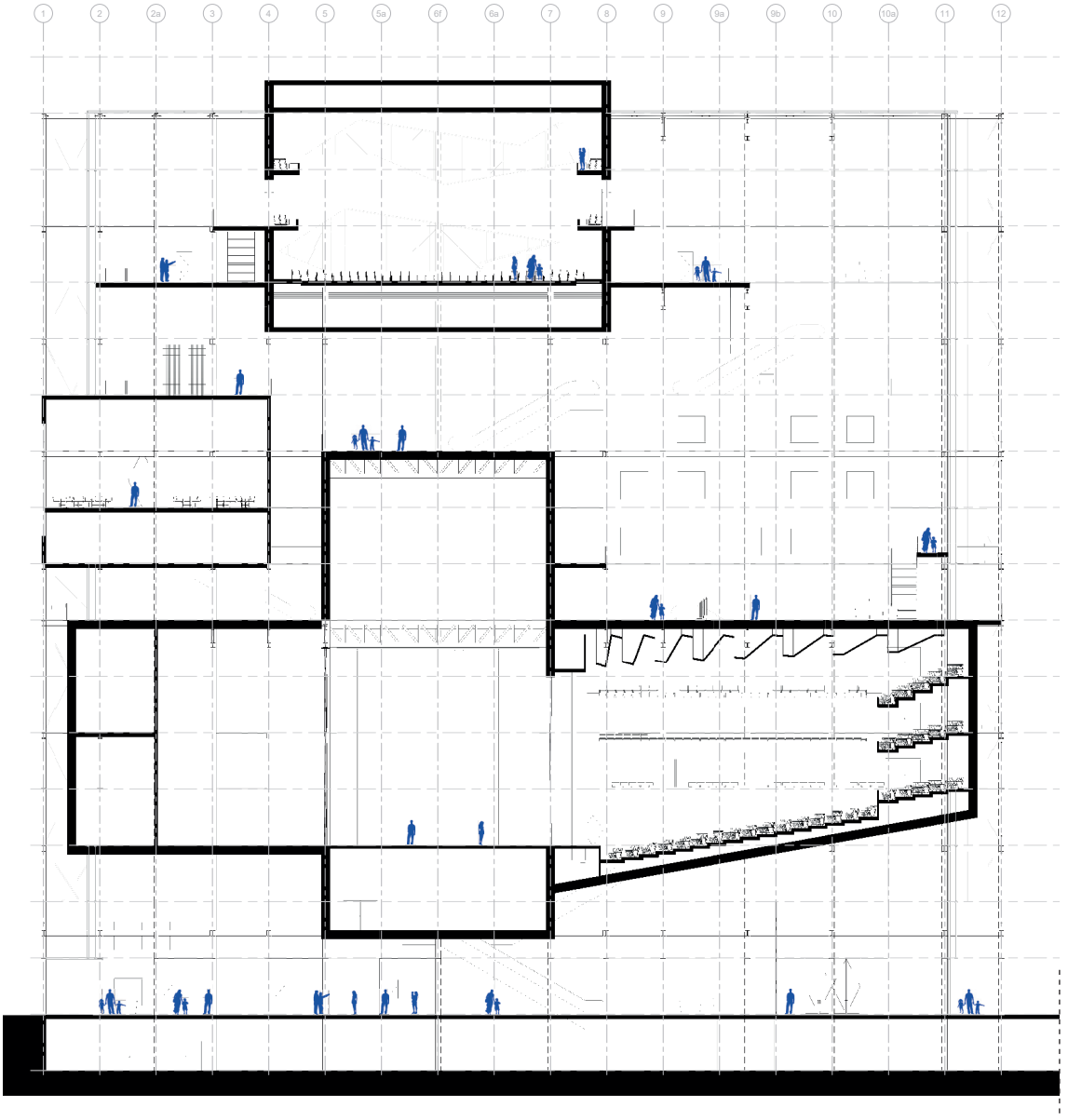


V16

11.21.
Roof plan.

Scale
1:500

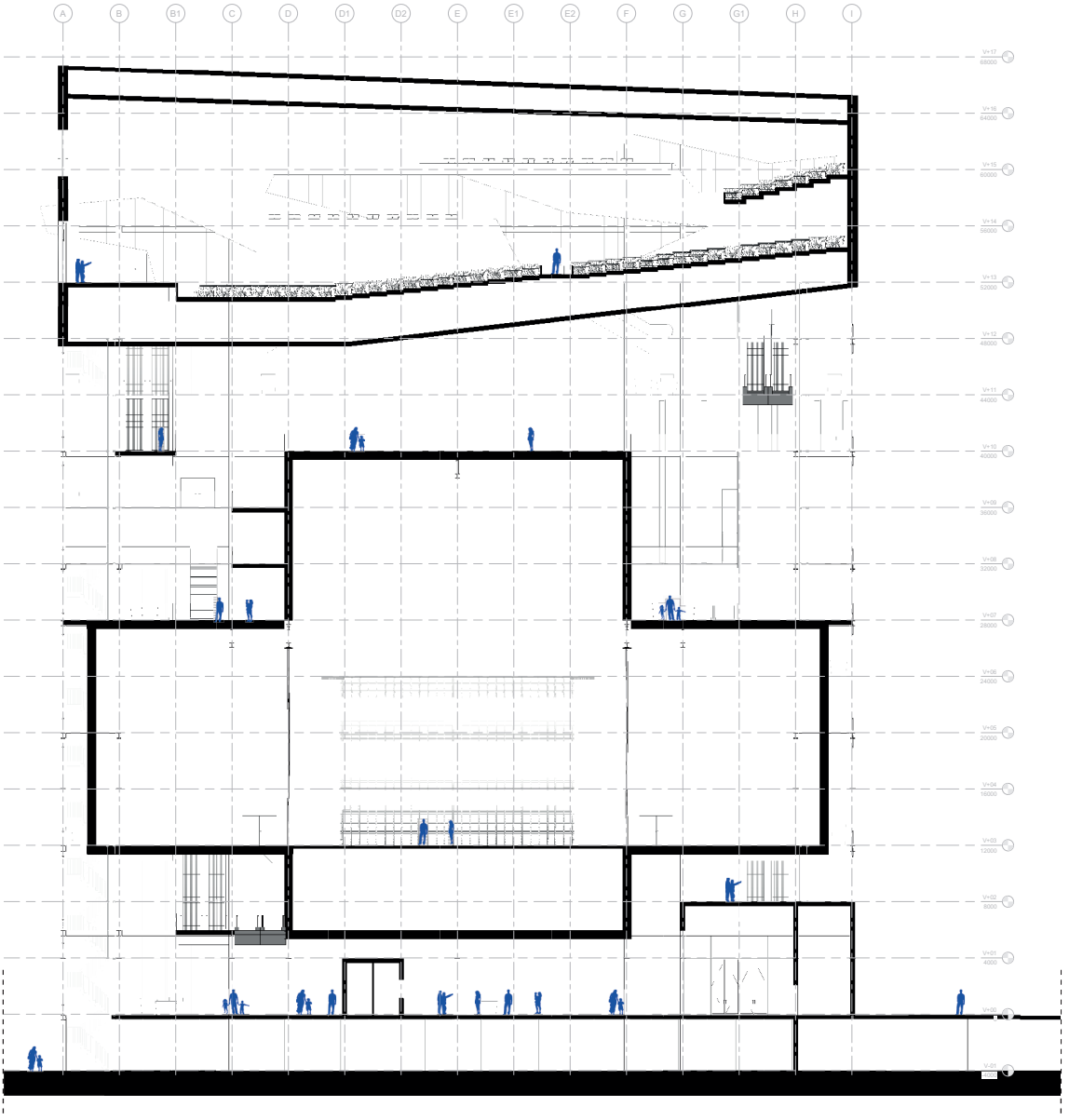
BUILDING SECTIONS



SECTION A-A

11.22.
Section with theatre hall.

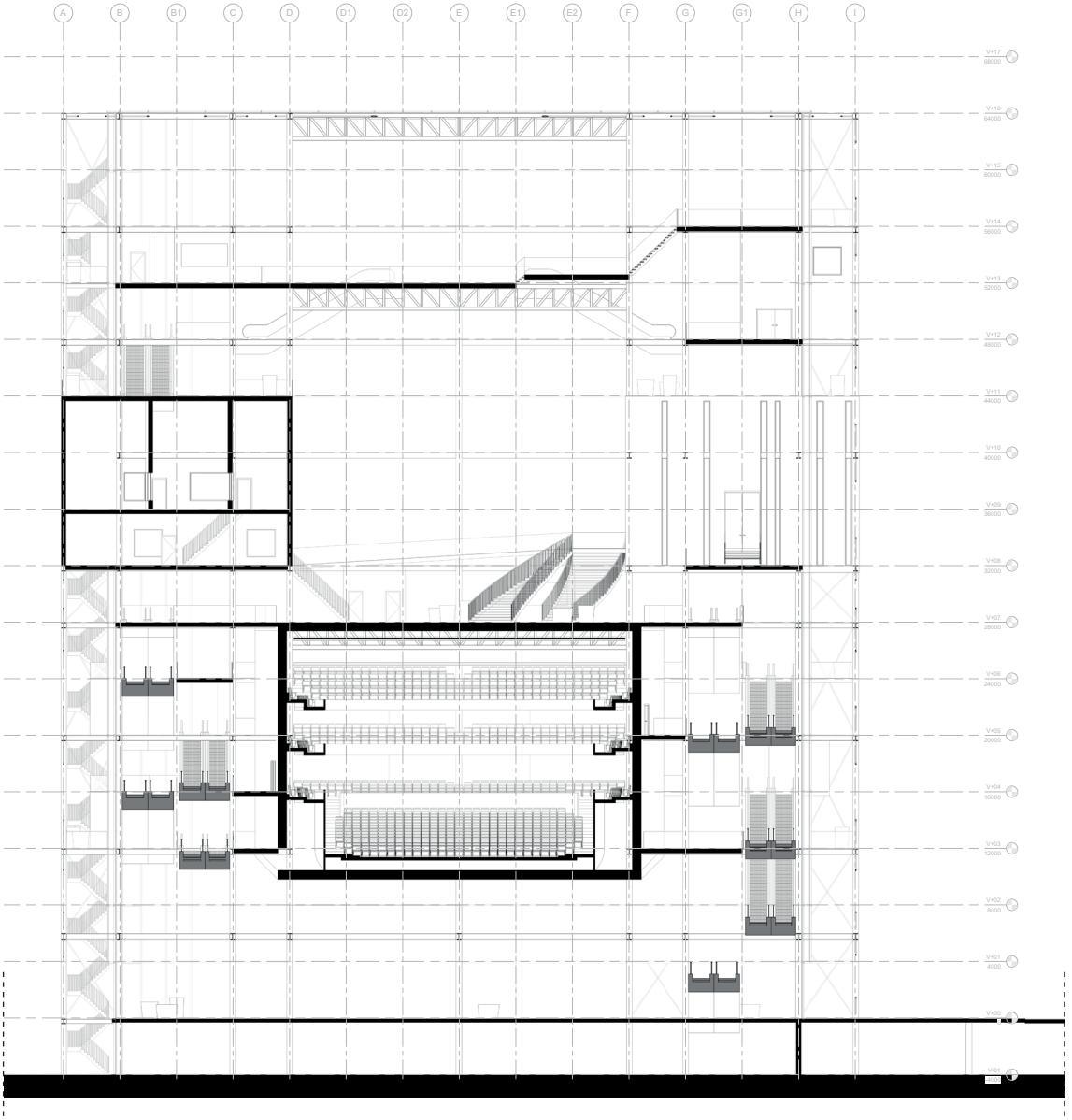
Scale
1:500



SECTION B-B

11.23.
Section with concert hall on top.

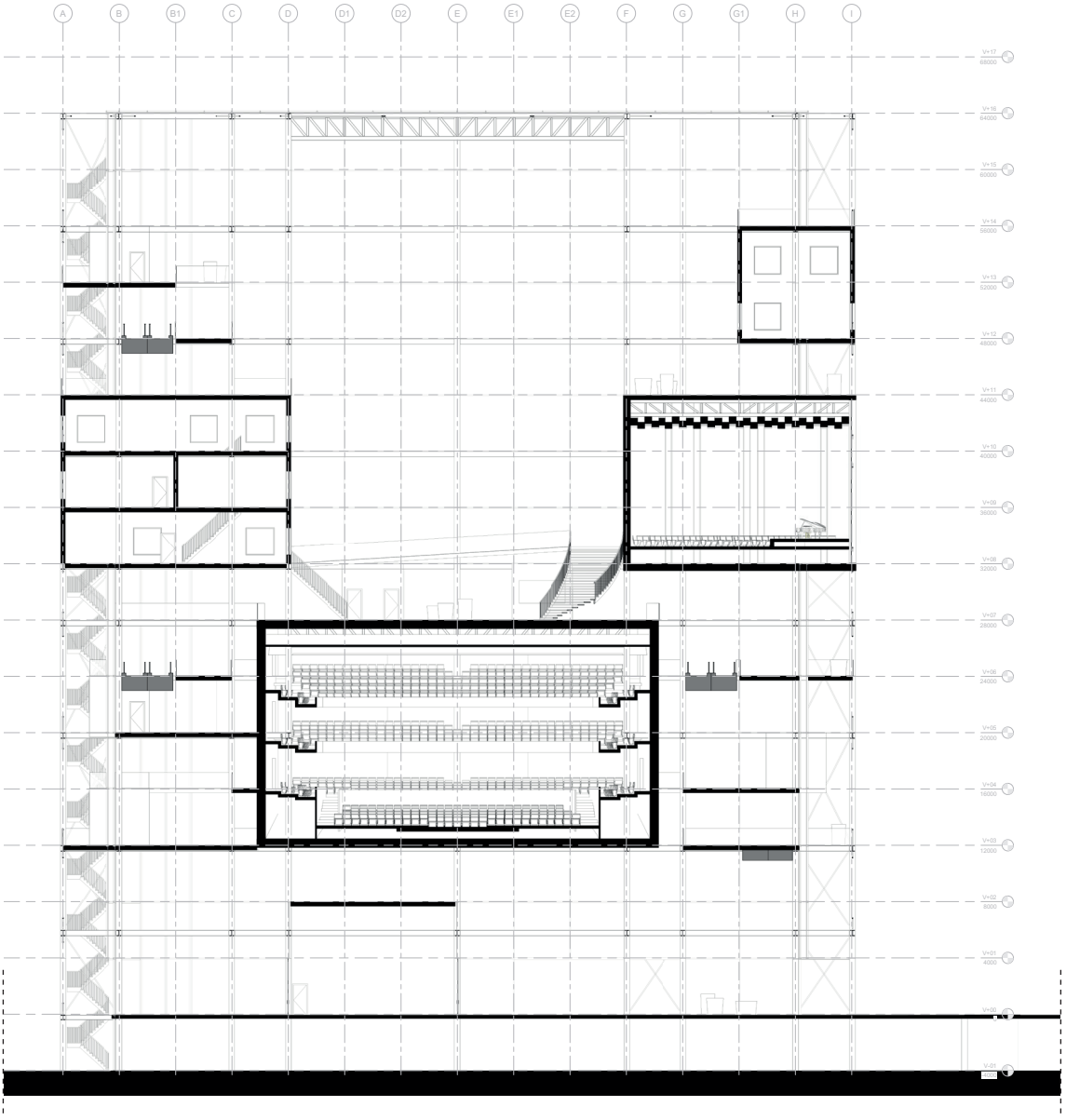
Scale
1:500



SECTION C-C

11.24.
Section with theatre hall - audience.

Scale
1:500

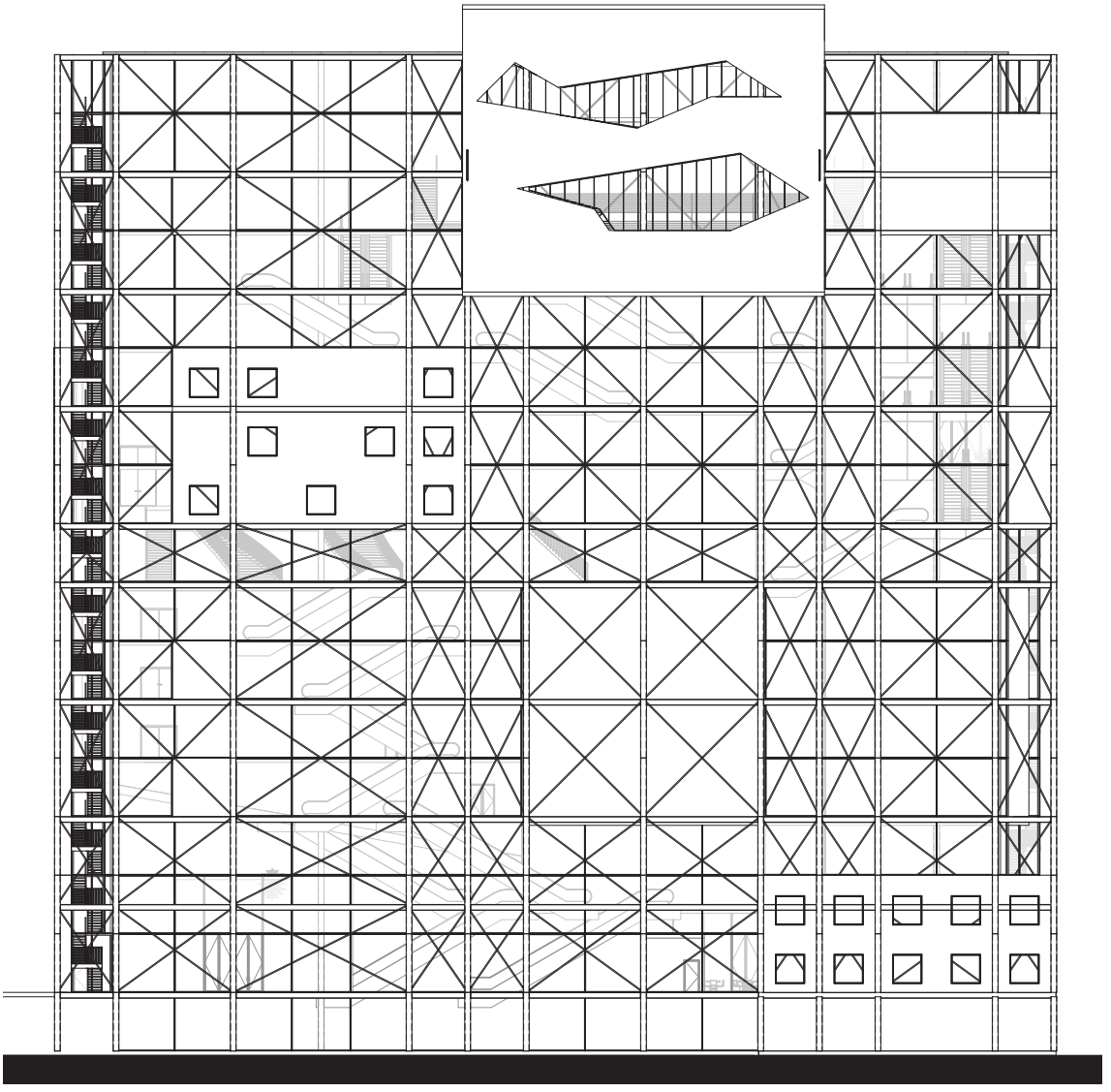


SECTION D-D

11.25.
Section with theatre hall and jazz hall.

Scale
1:500

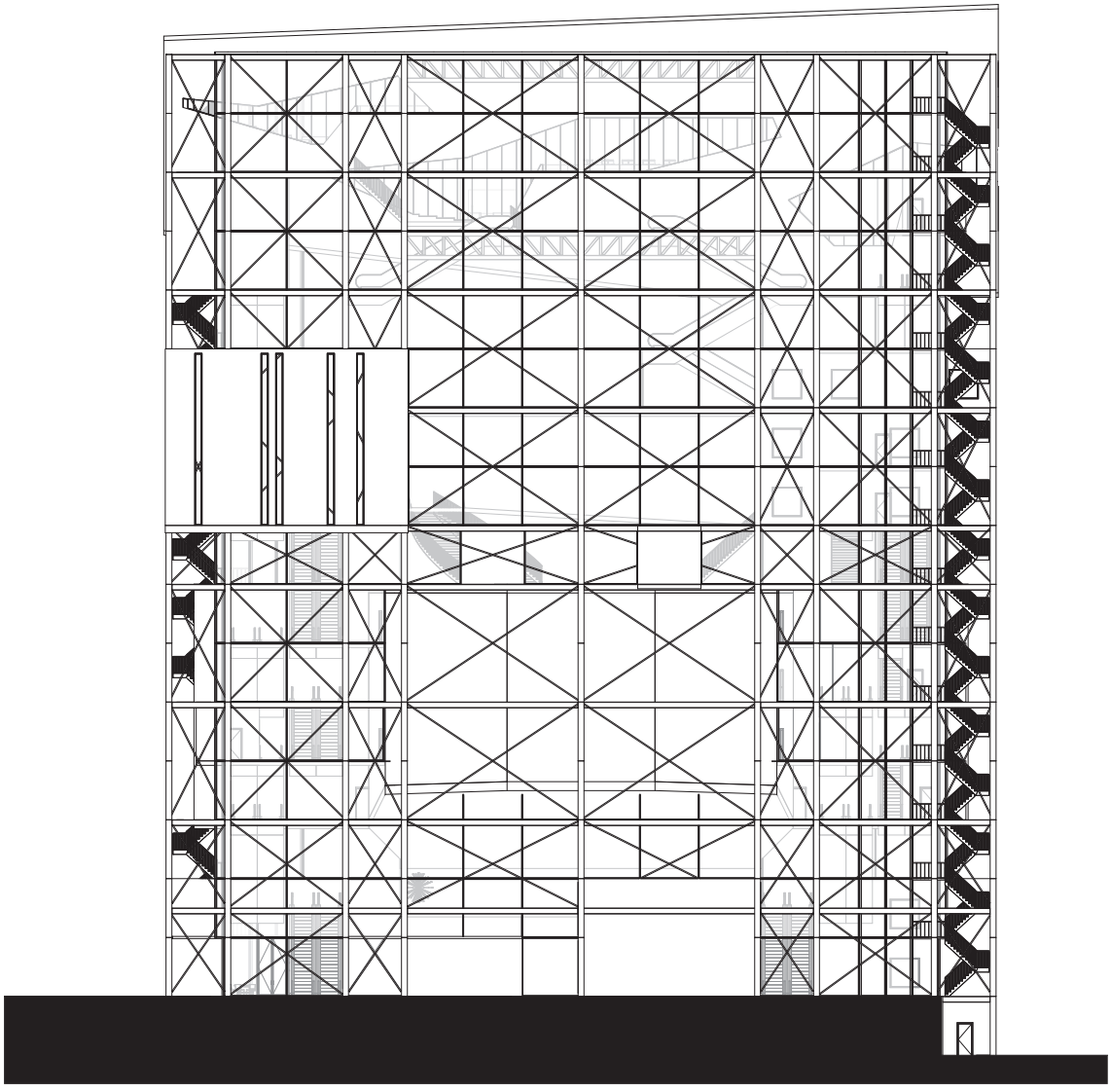
ELEVATIONS



NORTH

11.26.
North elevation with masses and clear rhythm of crosses due to the bracing.

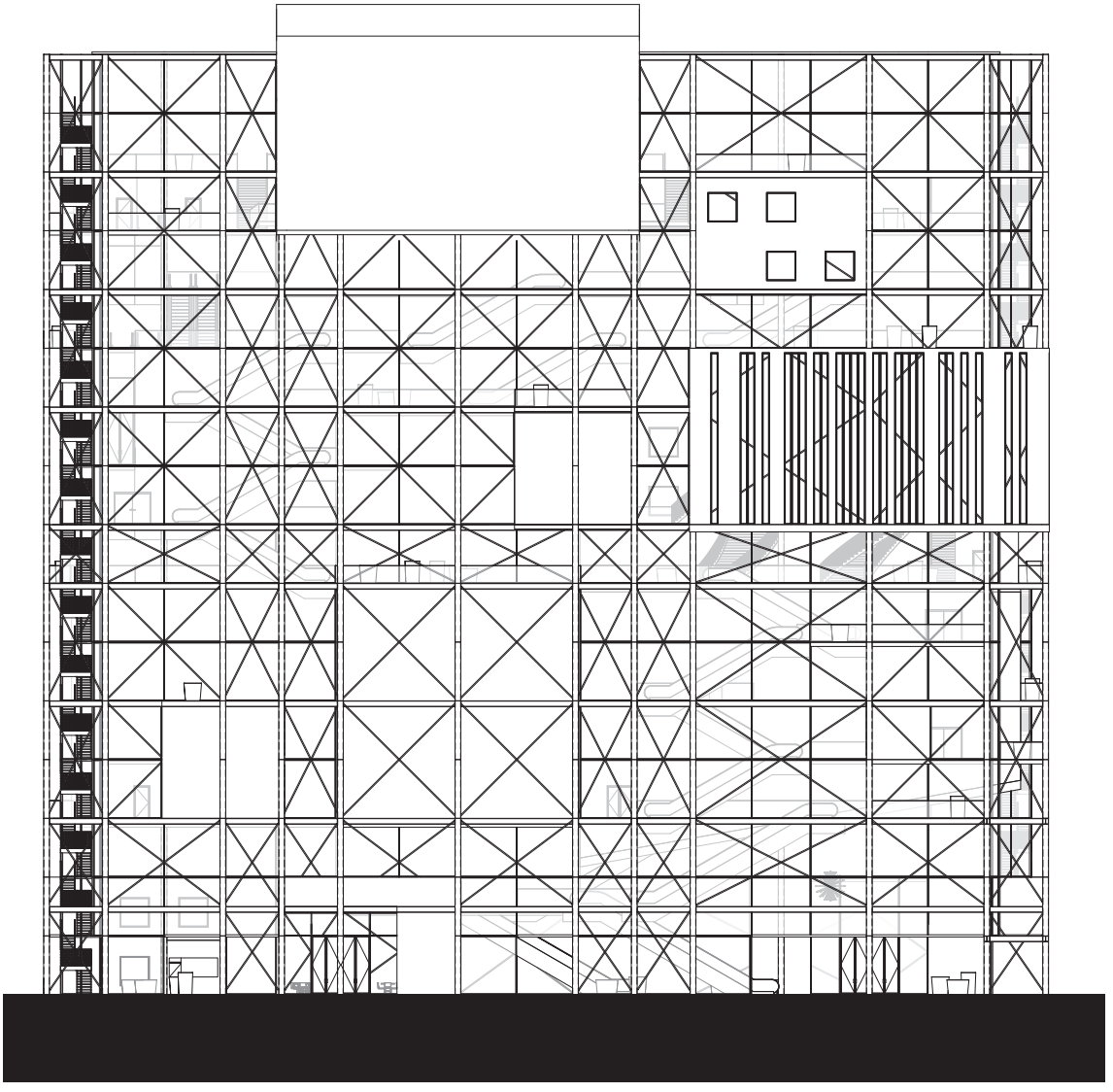
Scale
1:500



EAST

11.27.
East elevation with masses and clear rhythm of crosses due to the bracing.

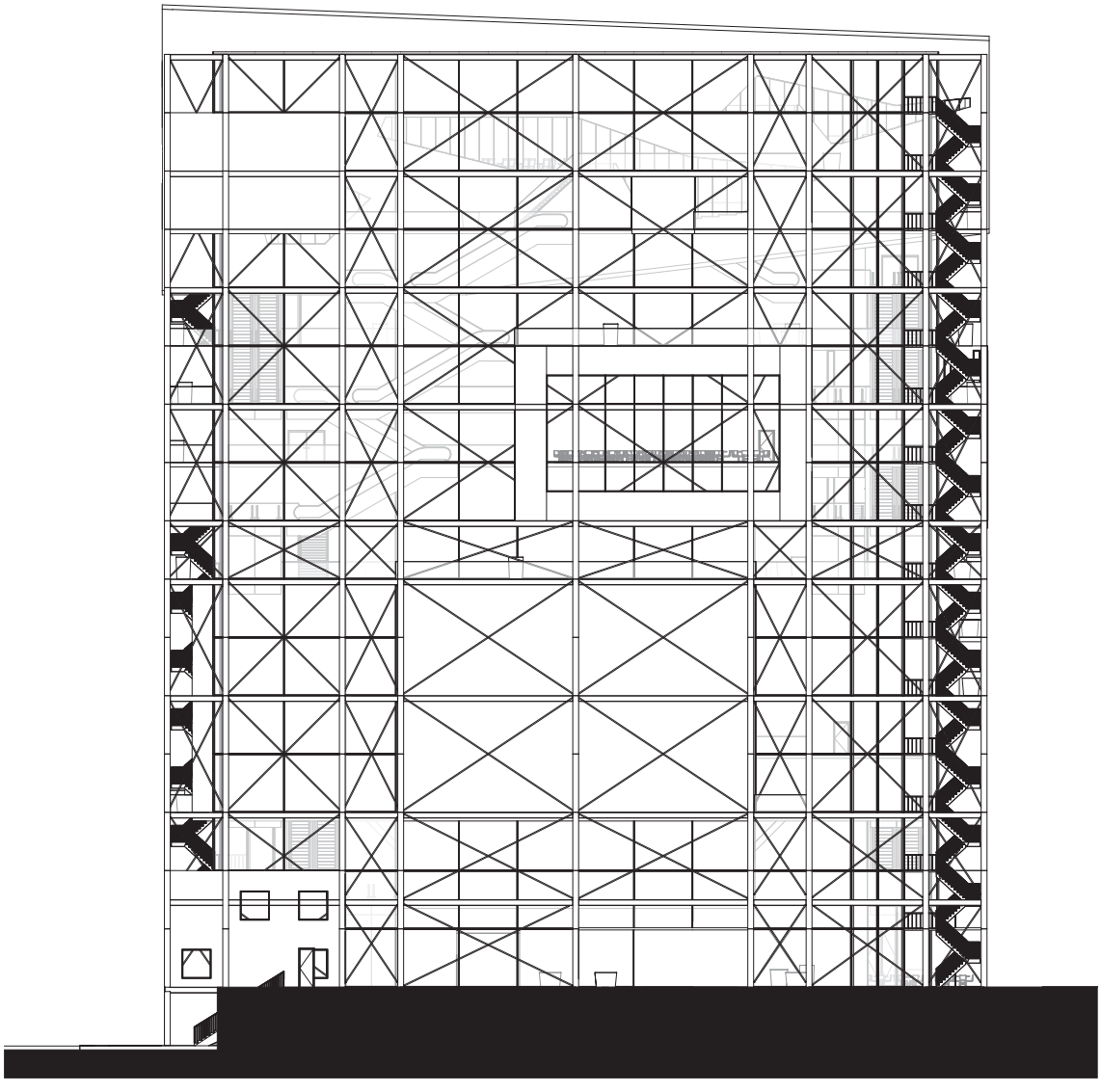
Scale
1:500



SOUTH

11.28.
South elevation with masses and clear rhythm of crosses due to the bracing.

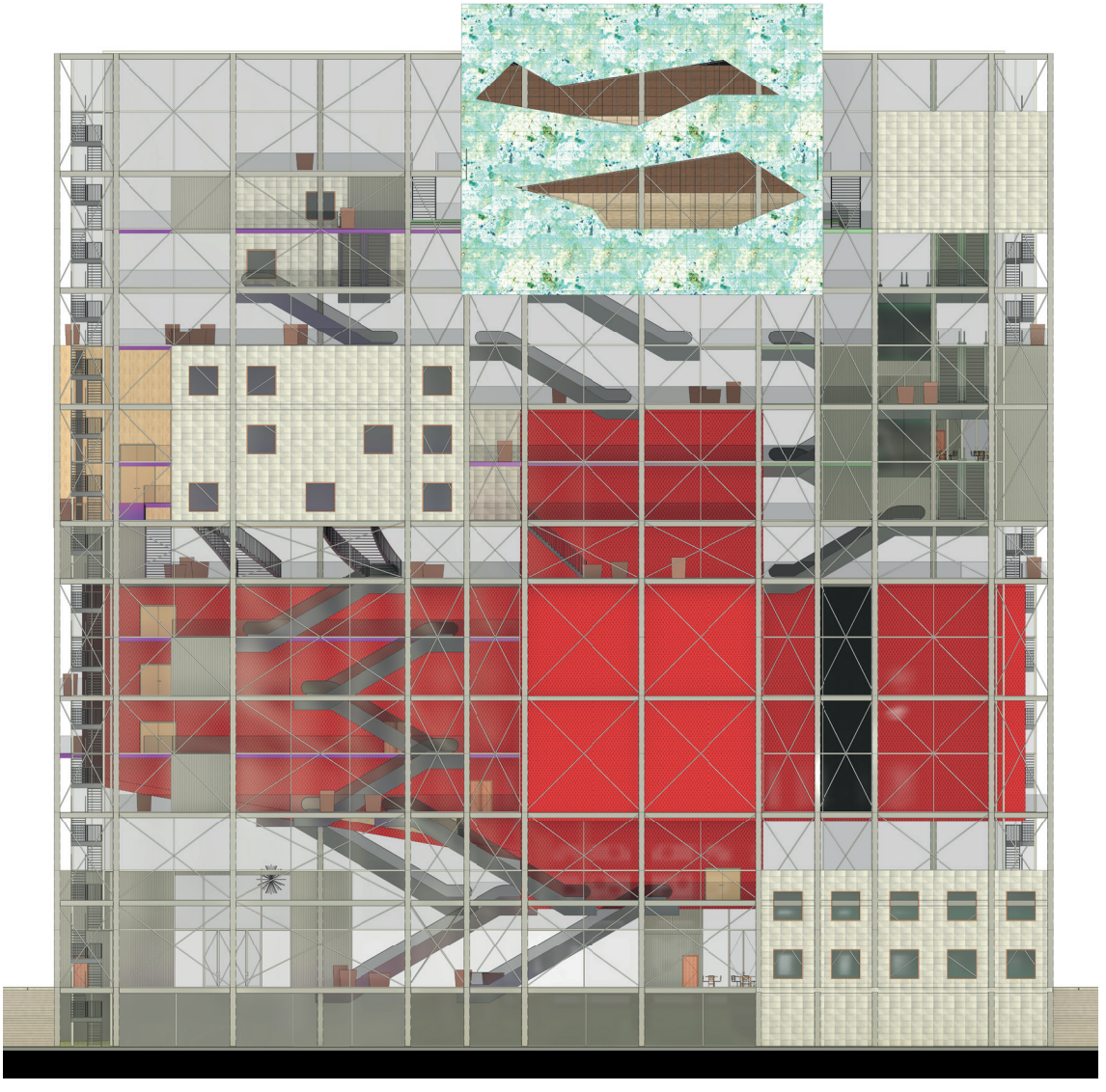
Scale
1:500



WEST

11.29.
West elevation with masses and clear rhythm of crosses due to the bracing.

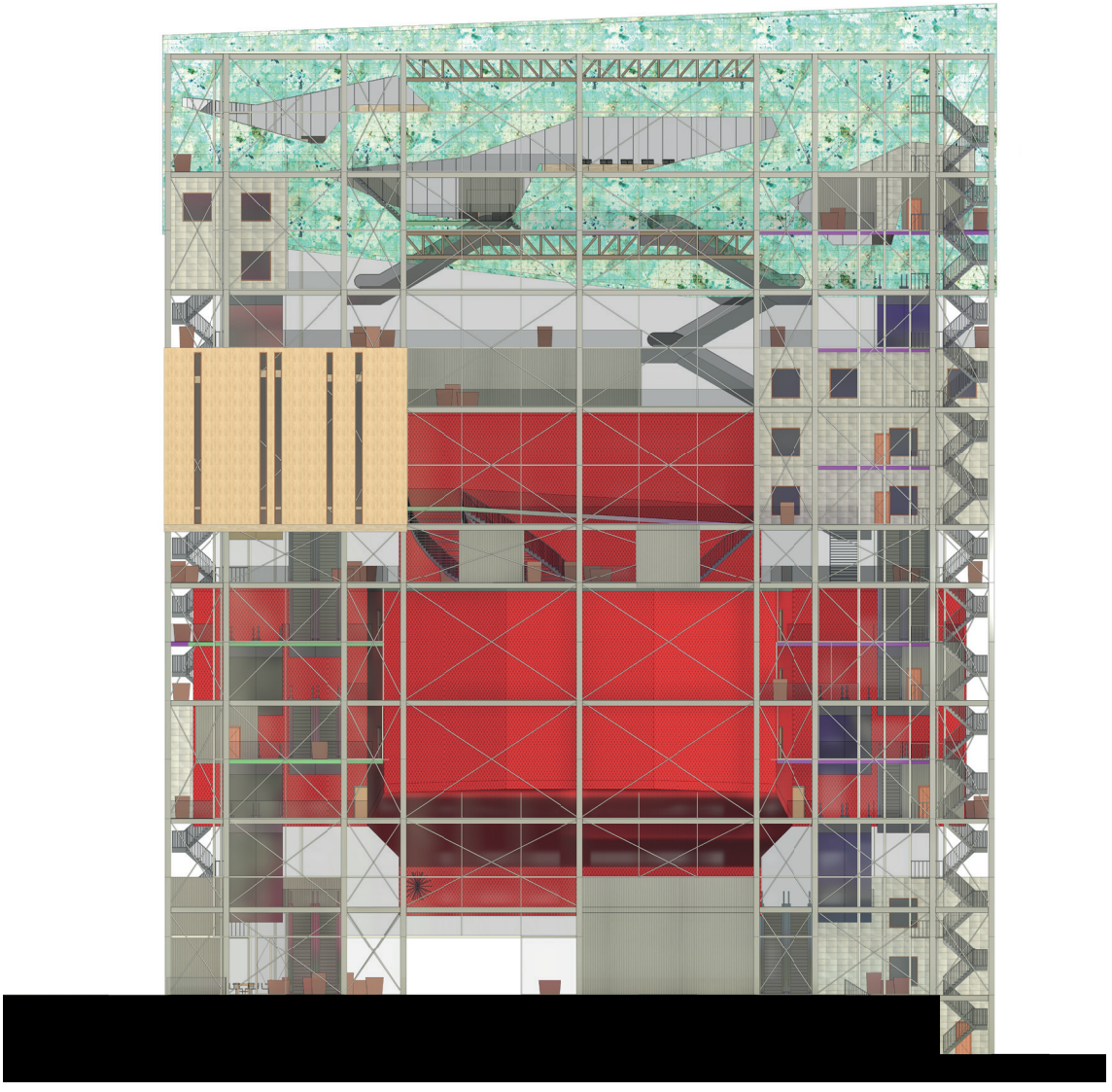
Scale
1:500



NORTH

11.30.
North elevation, impression with materials.

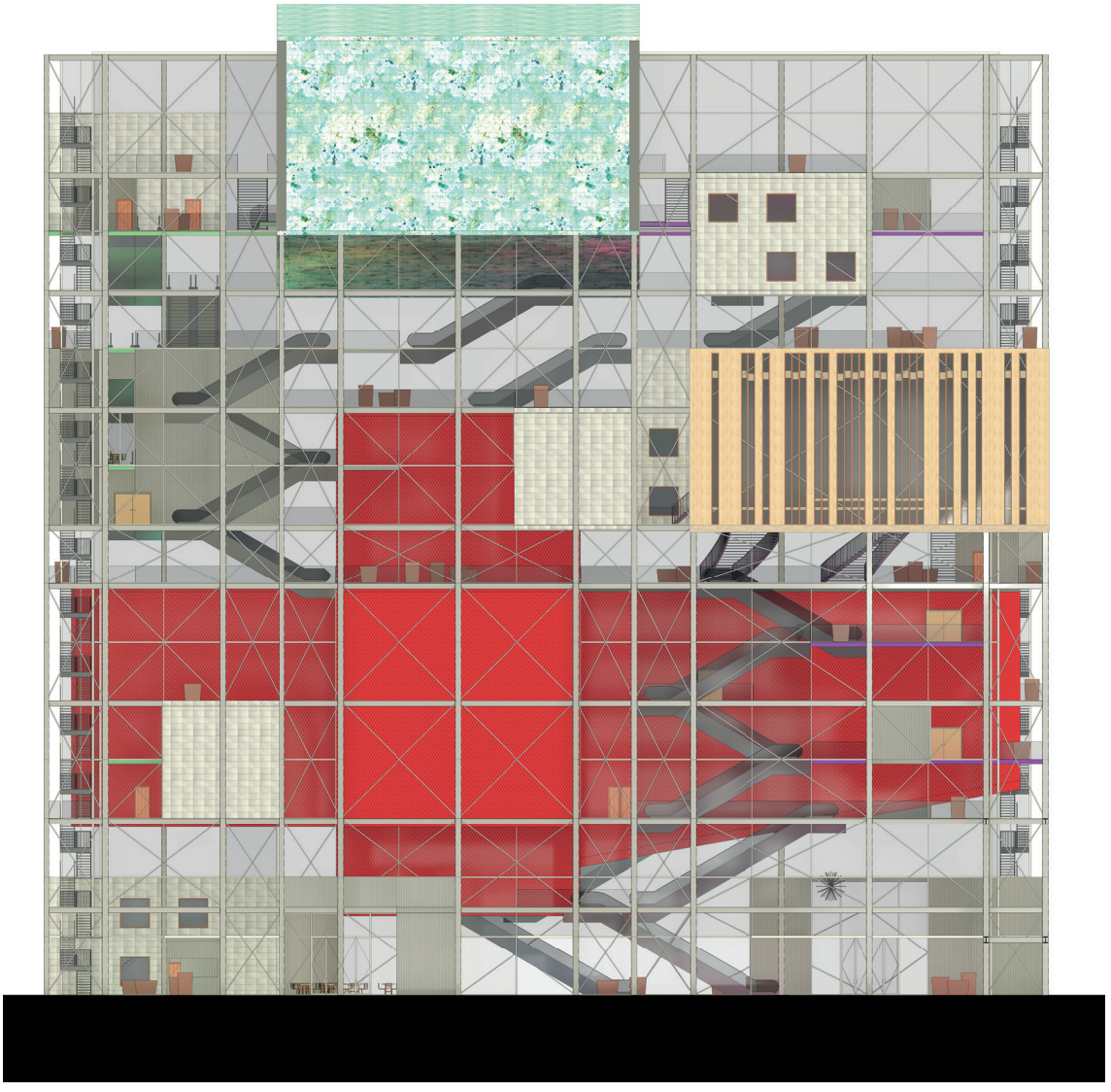
Scale
1:500



EAST

11.31.
East elevation, impression with materials.

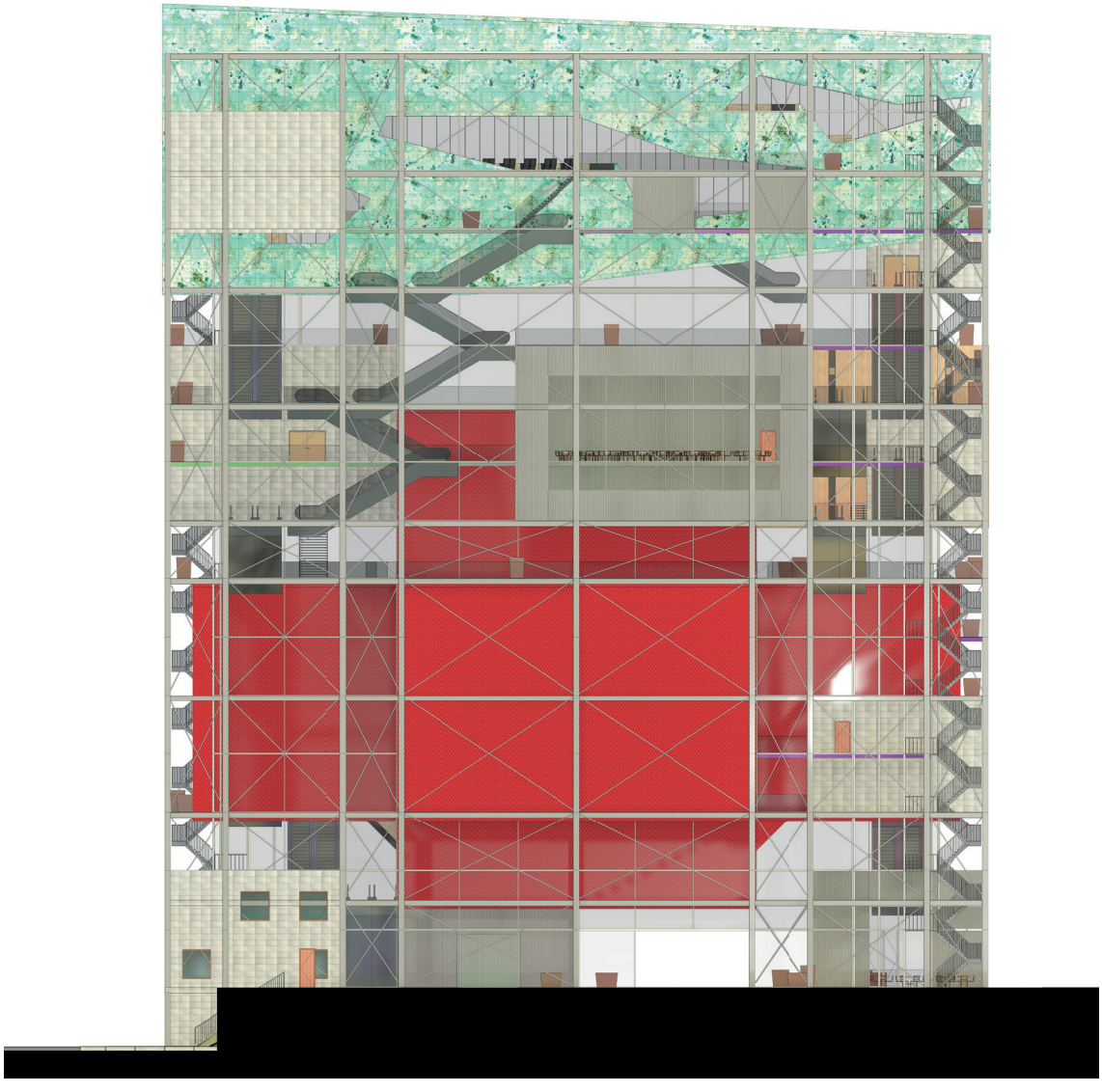
Scale
1:500



SOUTH

11.32.
South elevation, impression with materials.

Scale
1:500

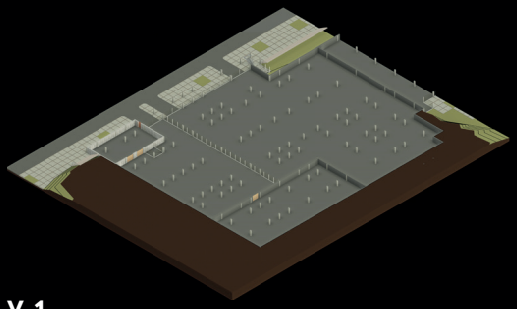


WEST

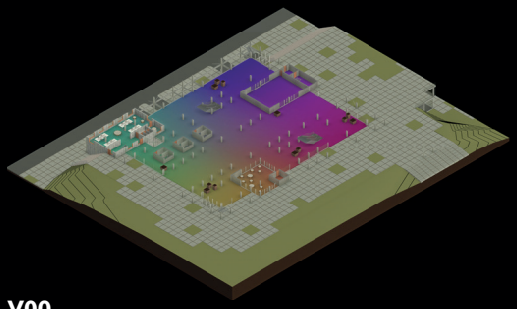
11.33.
West elevation, impression with materials.

Scale
1:500

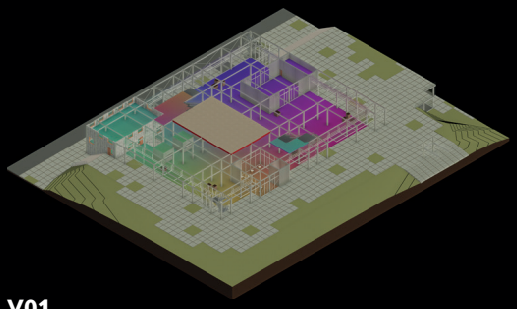
AXONOMETRIC



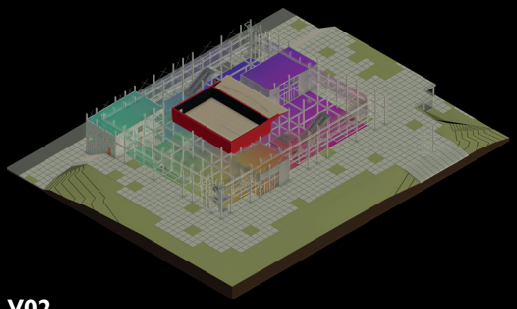
V-1



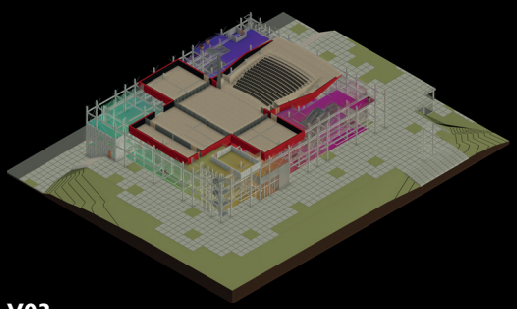
V00



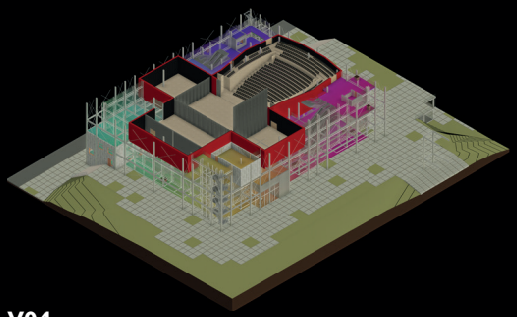
V01



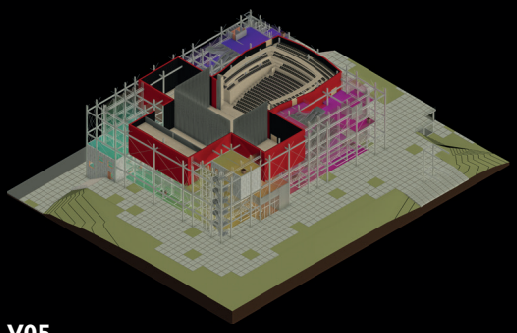
V02



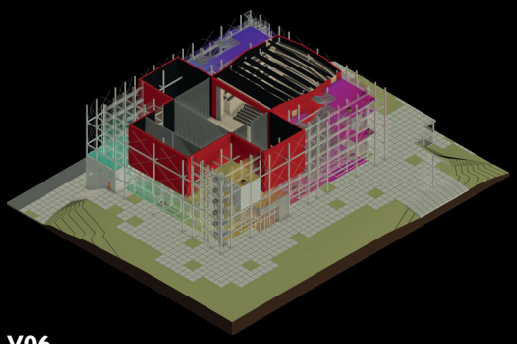
V03



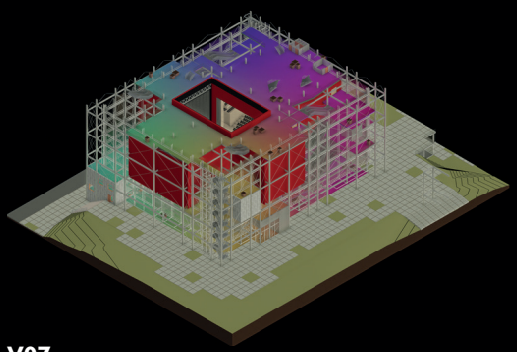
V04



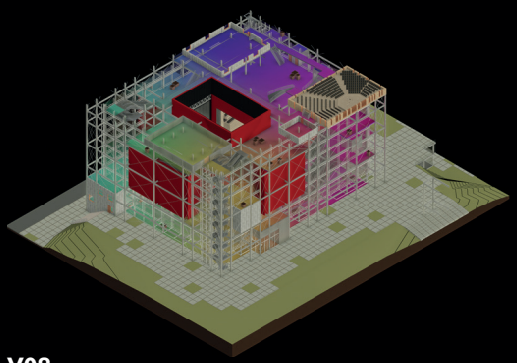
V05



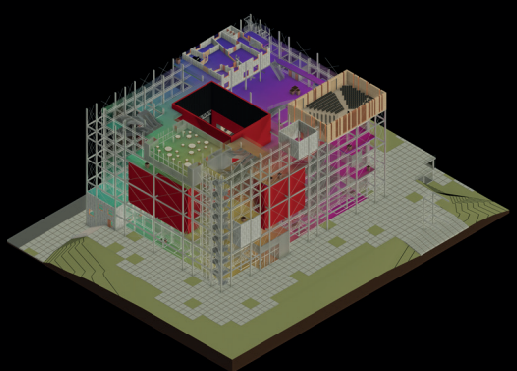
V06



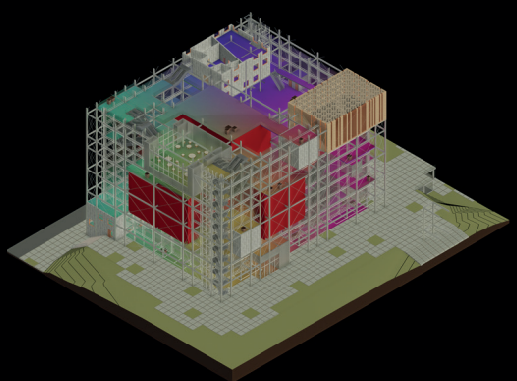
V07



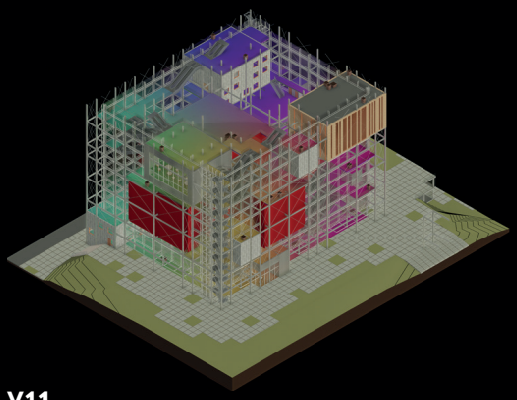
V08



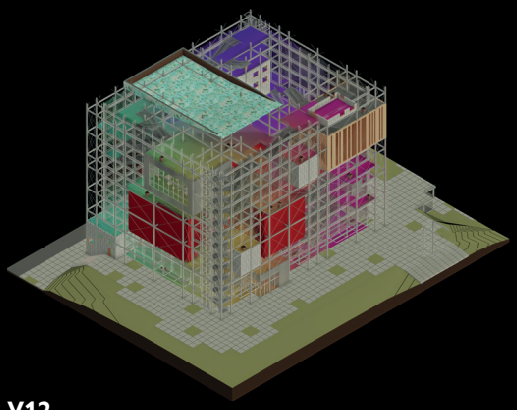
V09



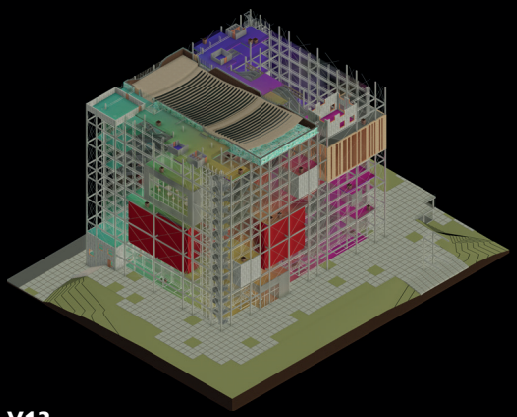
V10



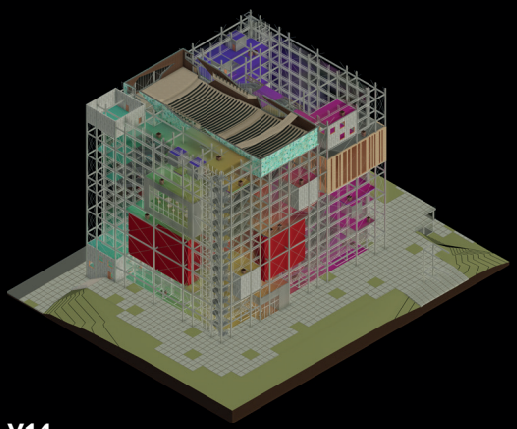
V11



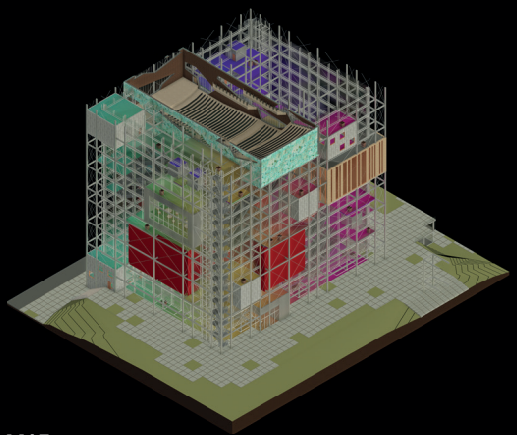
V12



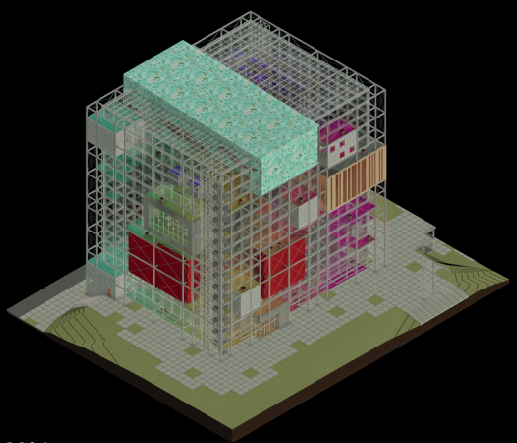
V13



V14

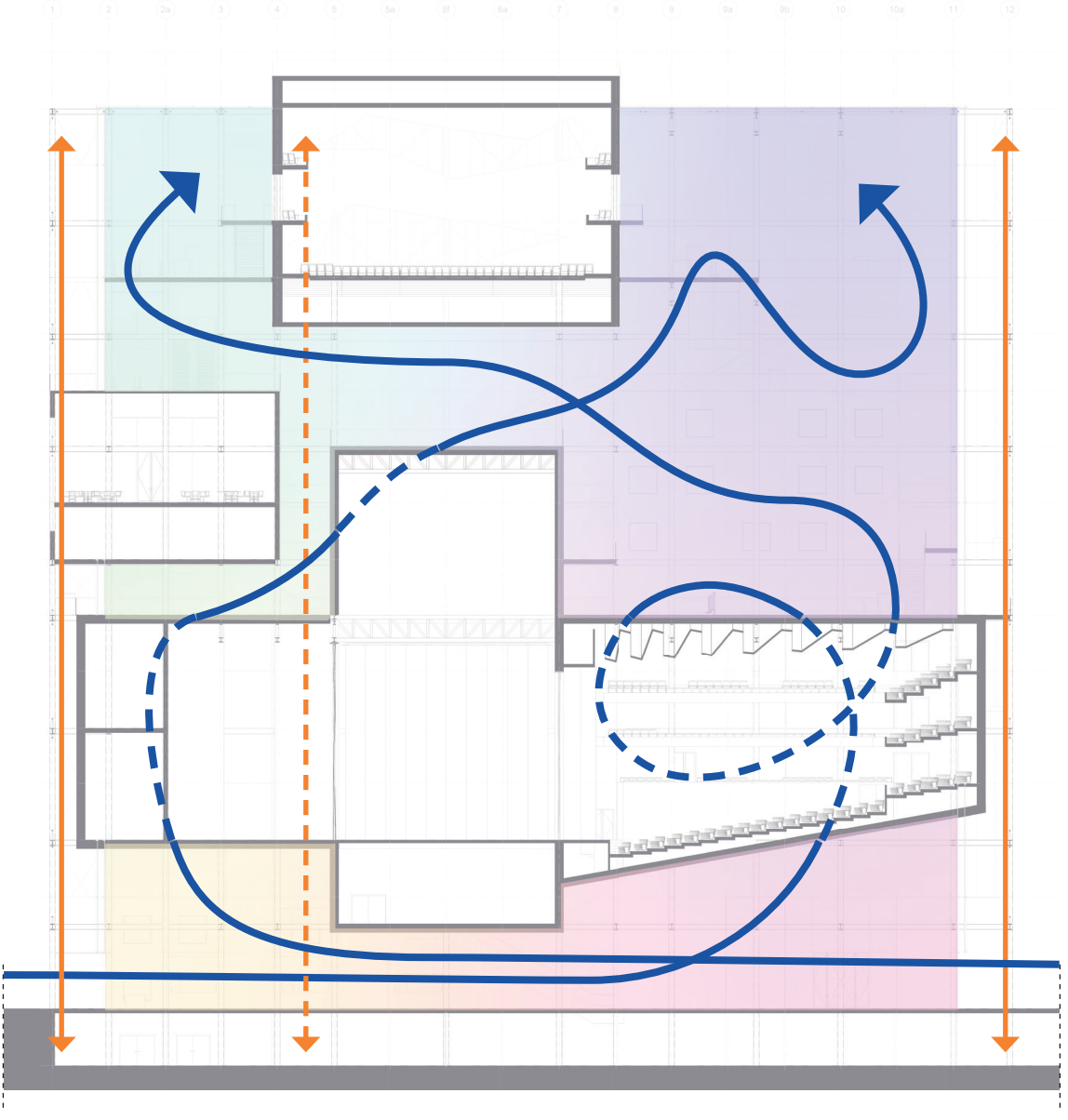


V15



V16

CIRCULATION SECTION

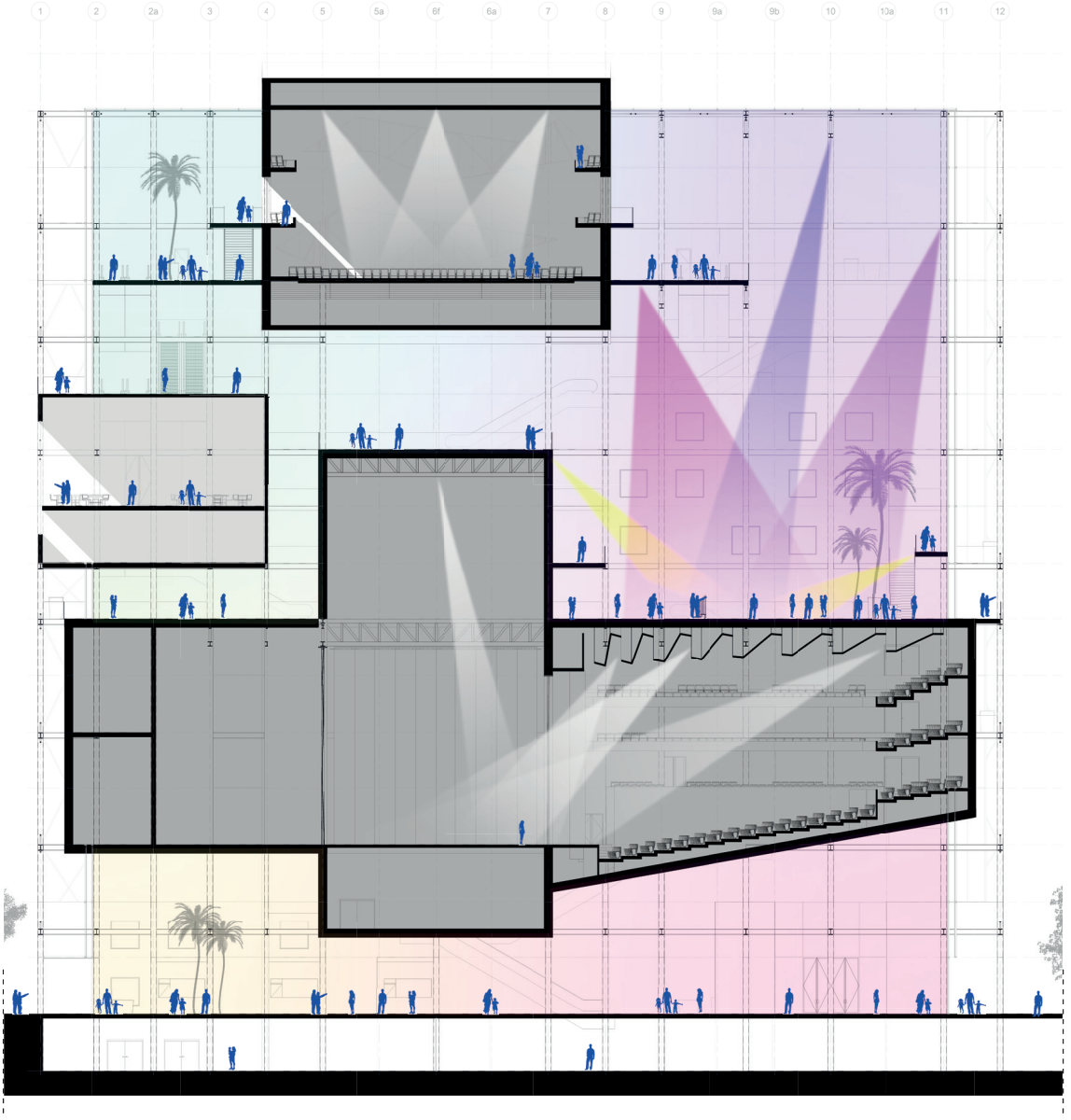


11.34. t/m 11.51. (previous pages: 312-314)
Axonometric view per level.

11.52.
Section showing the circulation within the festival space. Blue: wandering around, orange: elevators.

Scale
1:500

ACTIVITIES SECTION

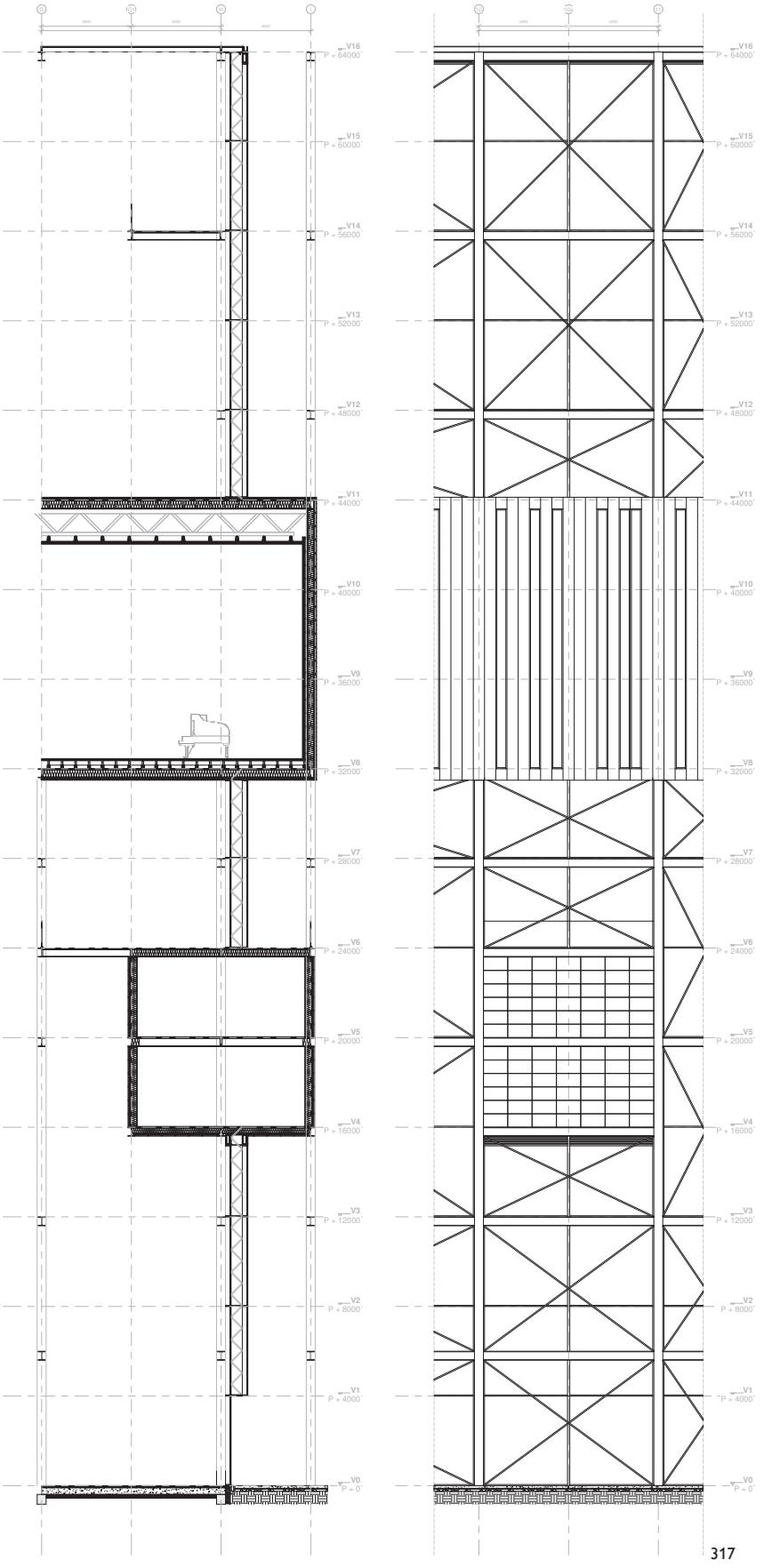


11.53.
Section showing the liveliness and activities within the festival space.

Scale
1:500

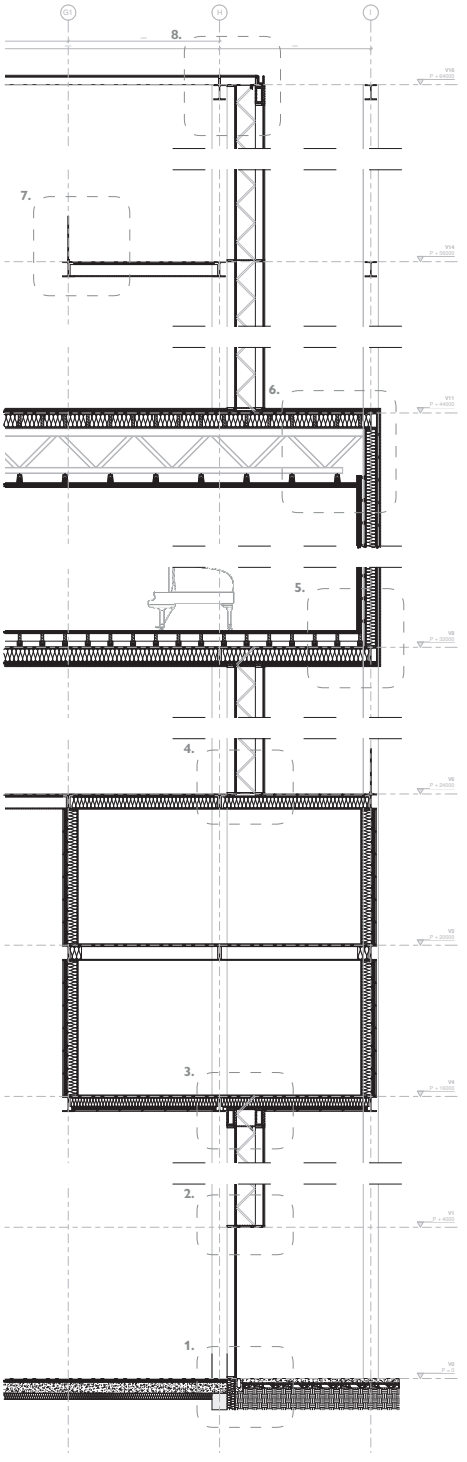
FRAGMENT

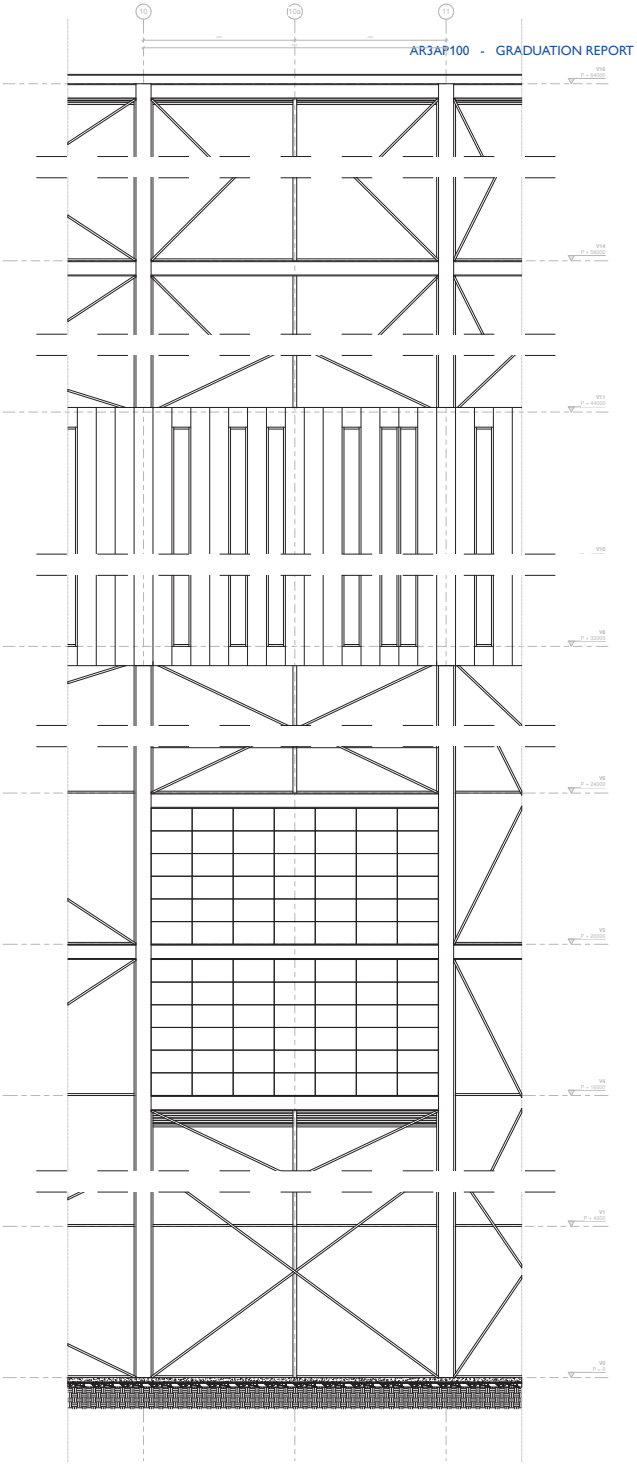
Scale
1:300 (originally 1:50)

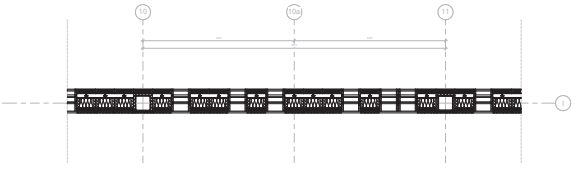


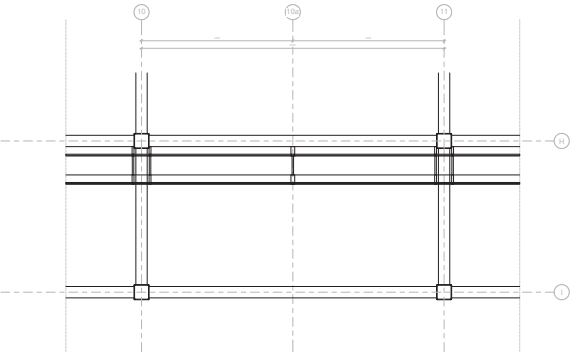
11.54. (left)
Facade fragment, section.

11.55. (right)
Facade fragment, elevation.

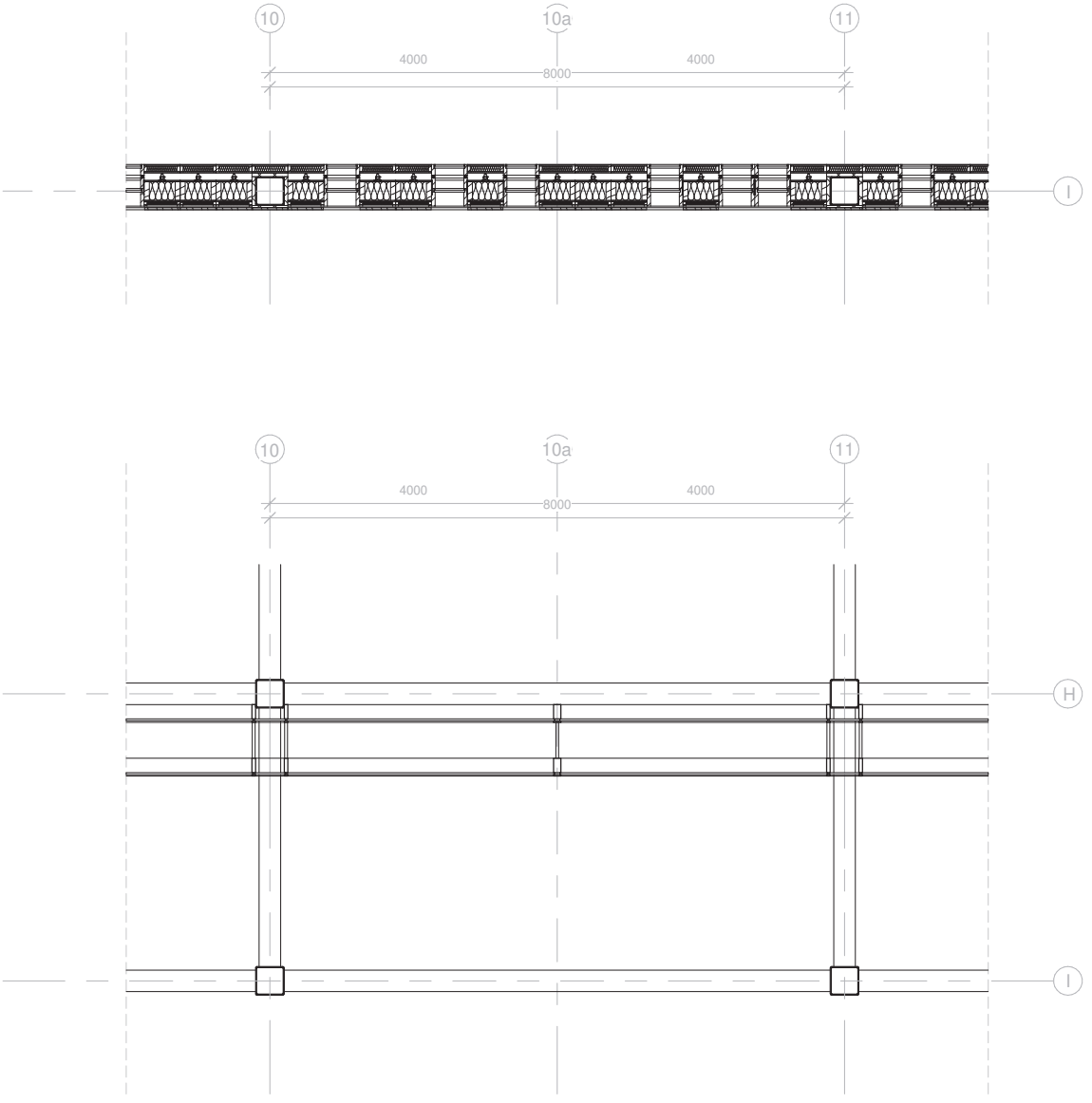








Scale
1:200 (originally 1:20)



11.56. (left page, top, left)
Detailed facade fragment, section.

11.57. (left page, top, right)
Detailed facade fragment, elevation.

11.58. (left page, bottom, left)
Detailed facade fragment, horizontal section of jazz hall.

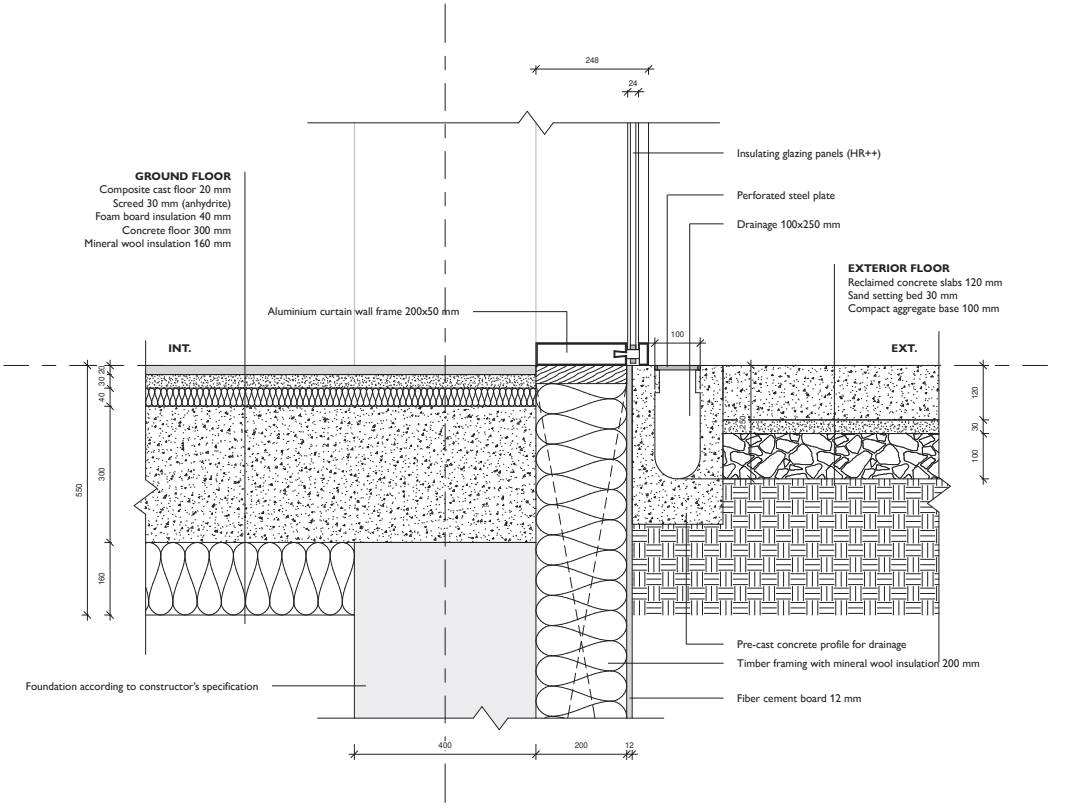
11.59. (left page, bottom, right)
Detailed facade fragment, horizontal section of climate facade.

11.60. (top)
Facade fragment, horizontal section of jazz hall.

11.61. (bottom)
Facade fragment, horizontal section of climate facade.

Scale
1:100 (originally 1:50)

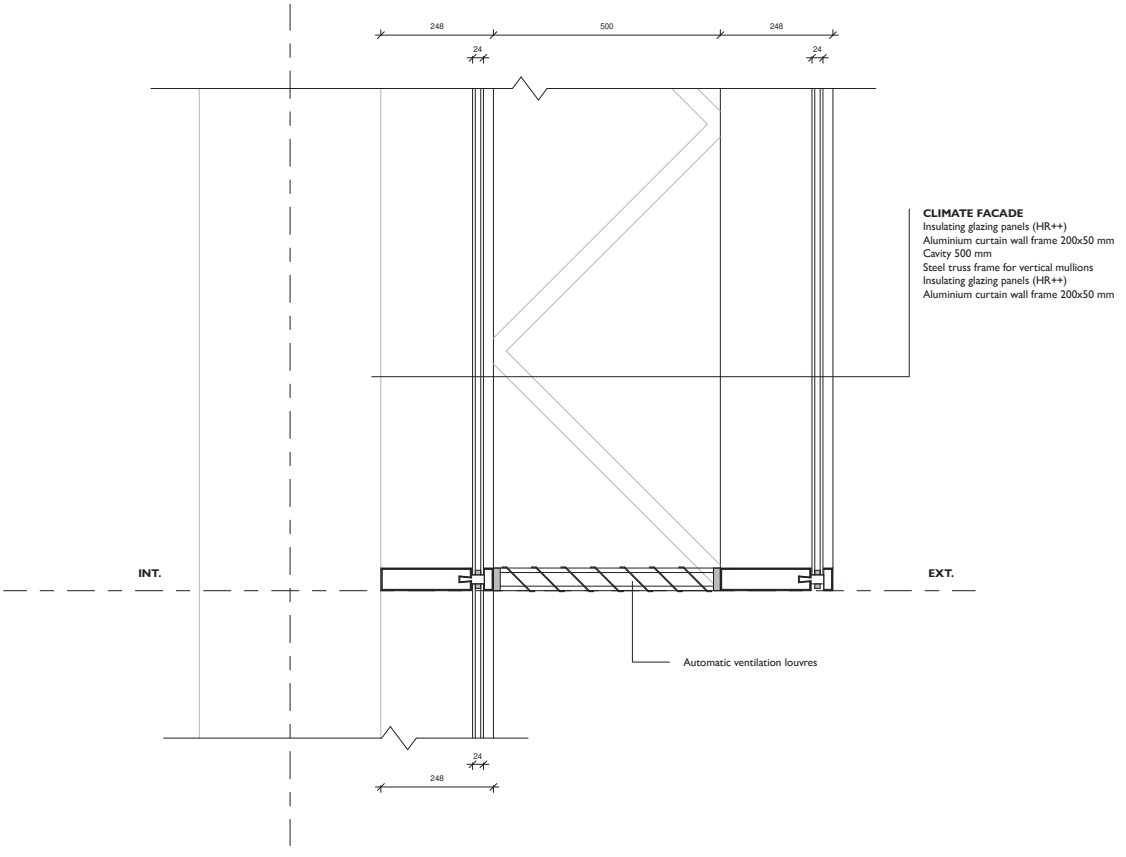
DETAILS



1. GROUND FLOOR - FACADE

11.61.
Vertical detail of the connection between the ground floor and the glass facade.

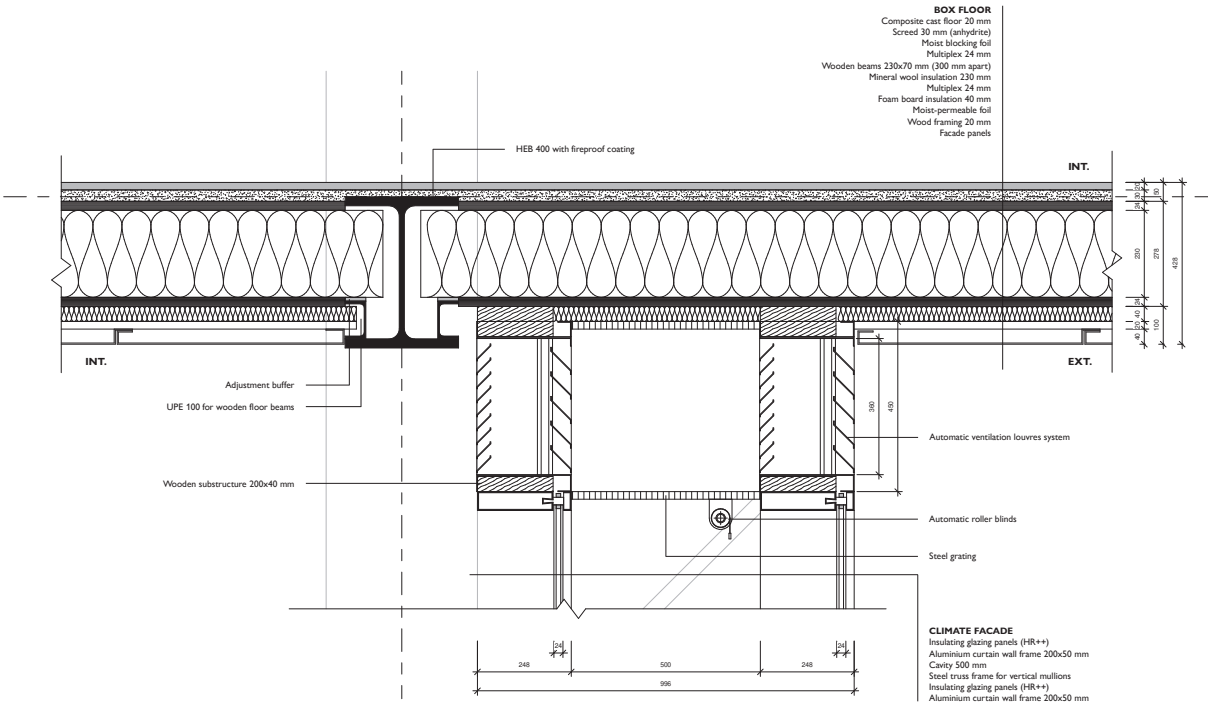
Scale
1:15 (90%)



2. CLIMATE FACADE

11.62.
Vertical detail of the connection between the ground floor facade and the climate facade.

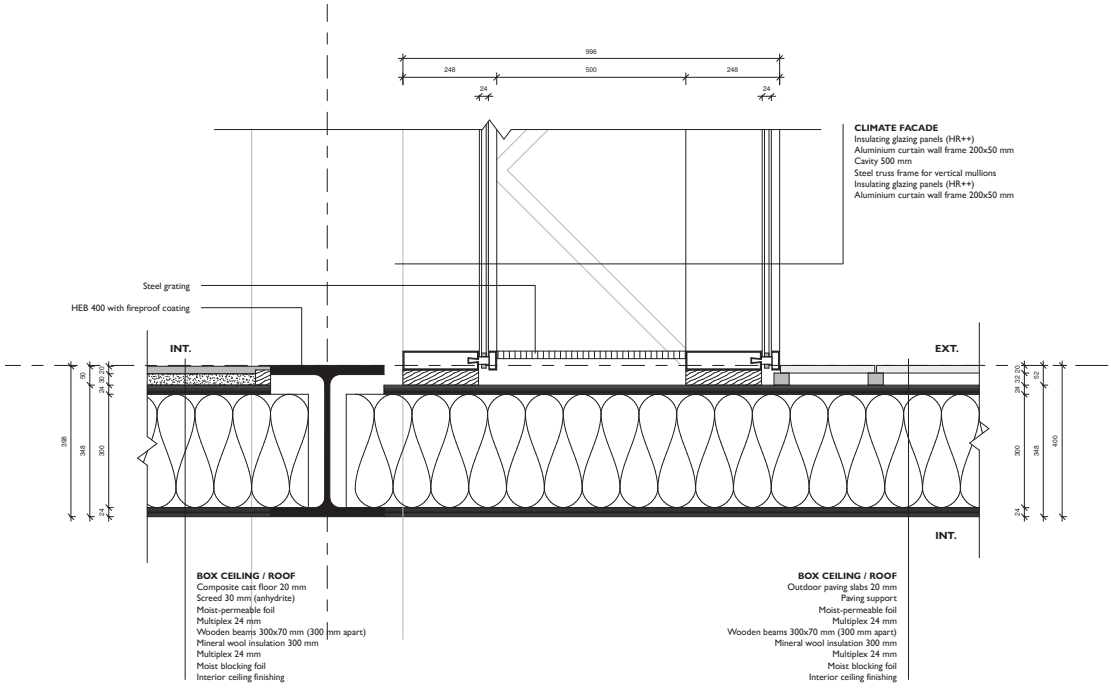
Scale
1:15 (90%)



3. CLIMATE FACADE - BOX (BOTTOM)

11.63.
Vertical detail of the connection between the climate facade and a general box floor.

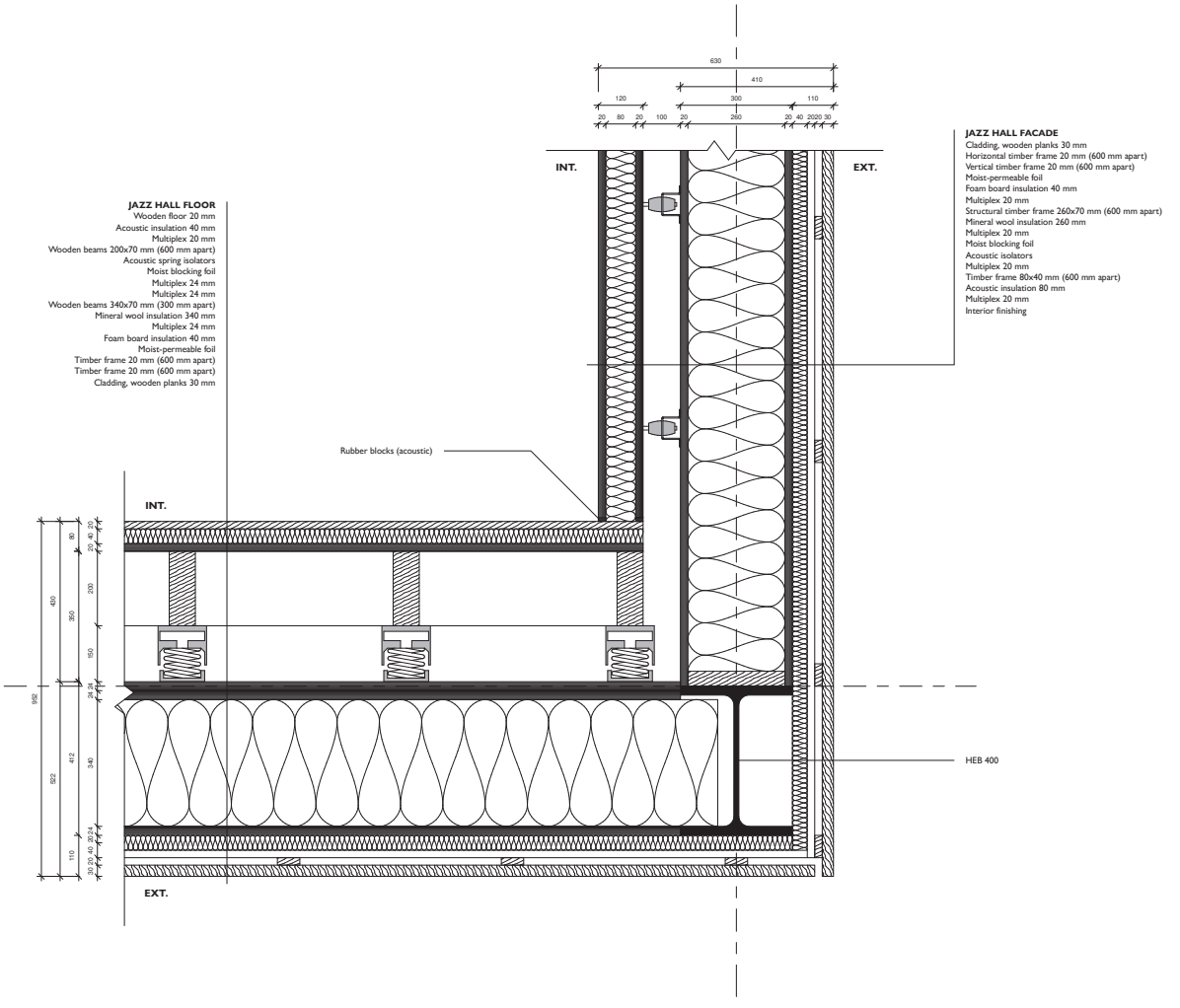
Scale
1:20



3. CLIMATE FACADE - BOX (TOP)

11.64.
Vertical detail of the connection between the climate facade and a general box floor.

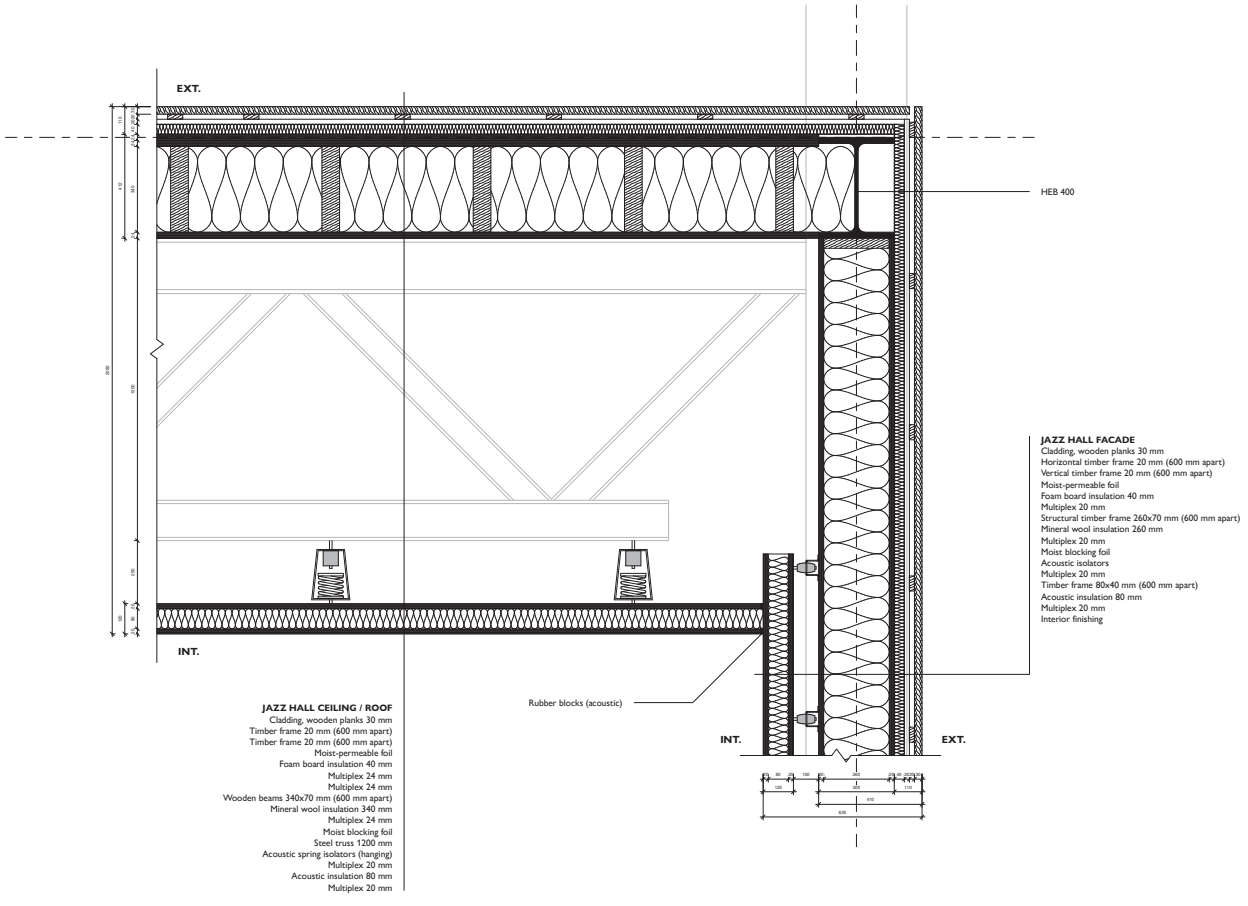
Scale
1:20



5. CONCERT HALL - BOTTOM CORNER

11.65.
Vertical detail of the connection between the jazz hall floor and the jazz hall wall.

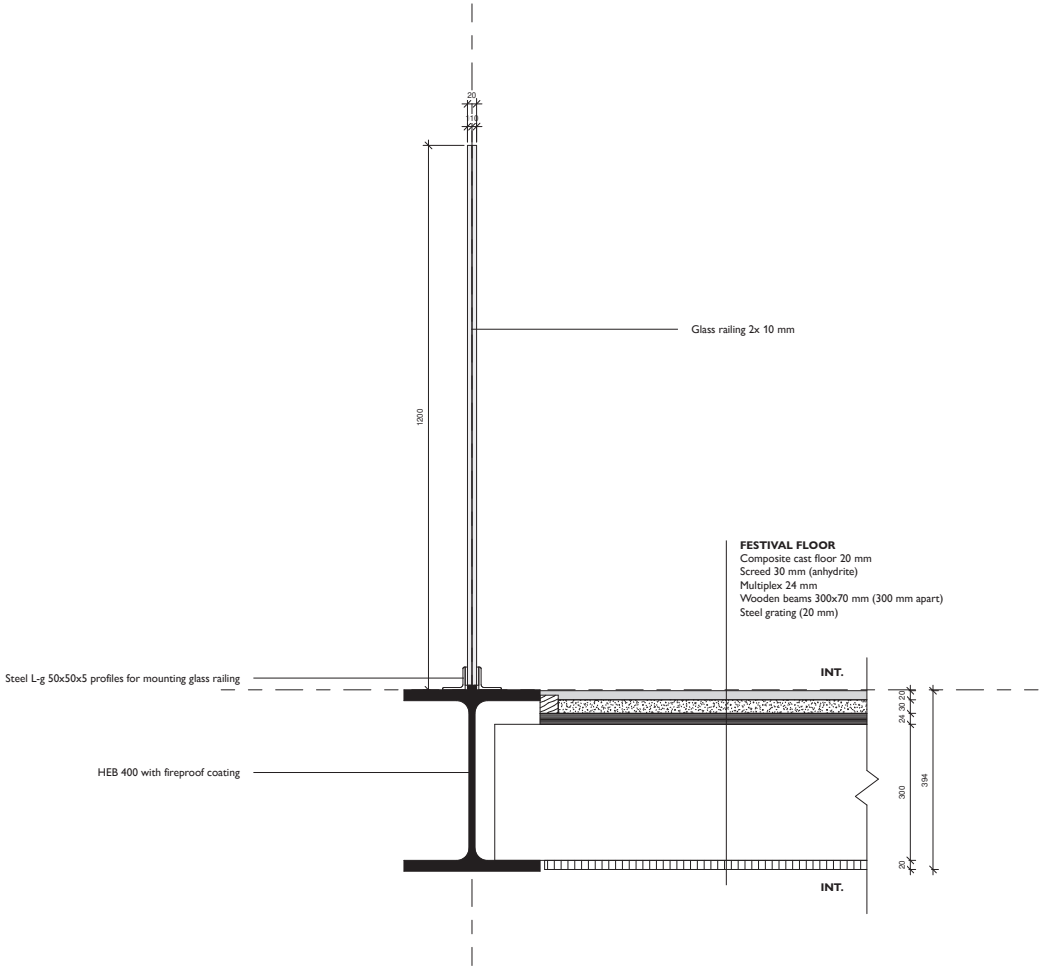
Scale
1:20



6. CONCERT HALL - TOP CORNER

11.66.
Vertical detail of the connection between the jazz hall roof and the jazz hall wall.

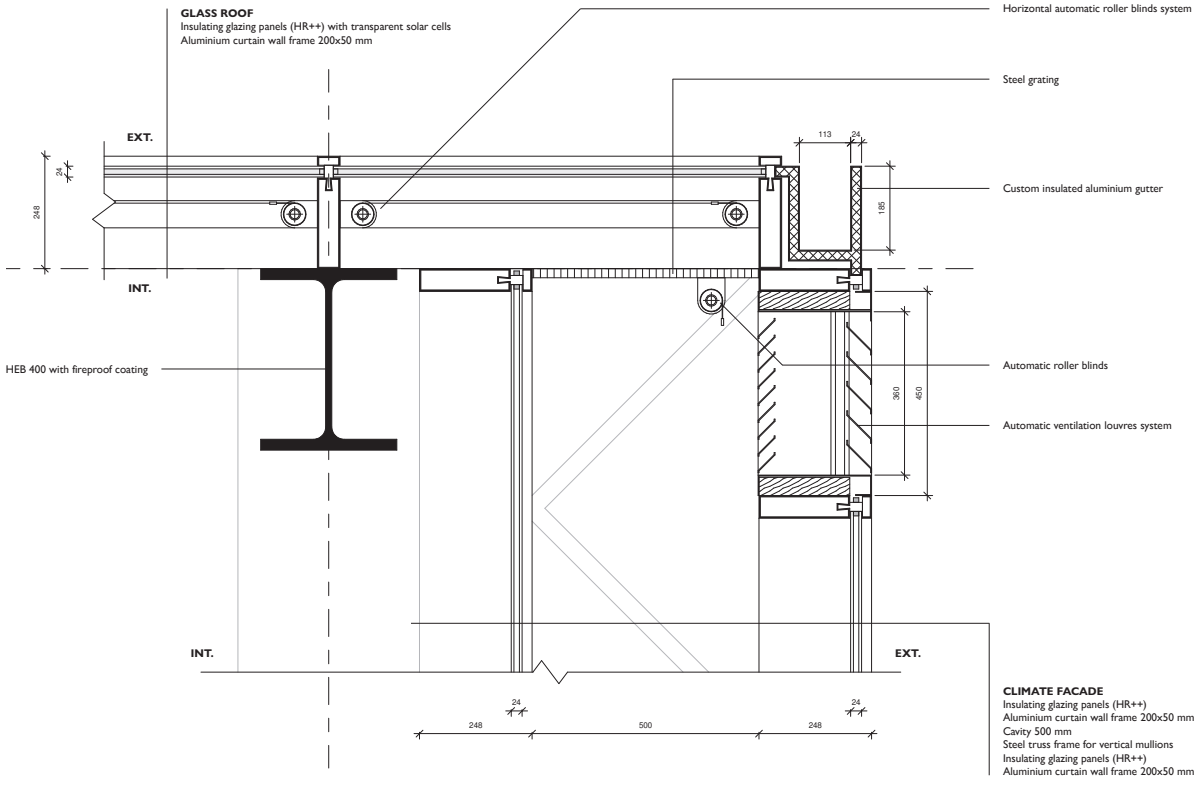
Scale
1:20



7. FESTIVAL FLOOR RAILING

11.67.
Vertical detail of the festival floor and railing.

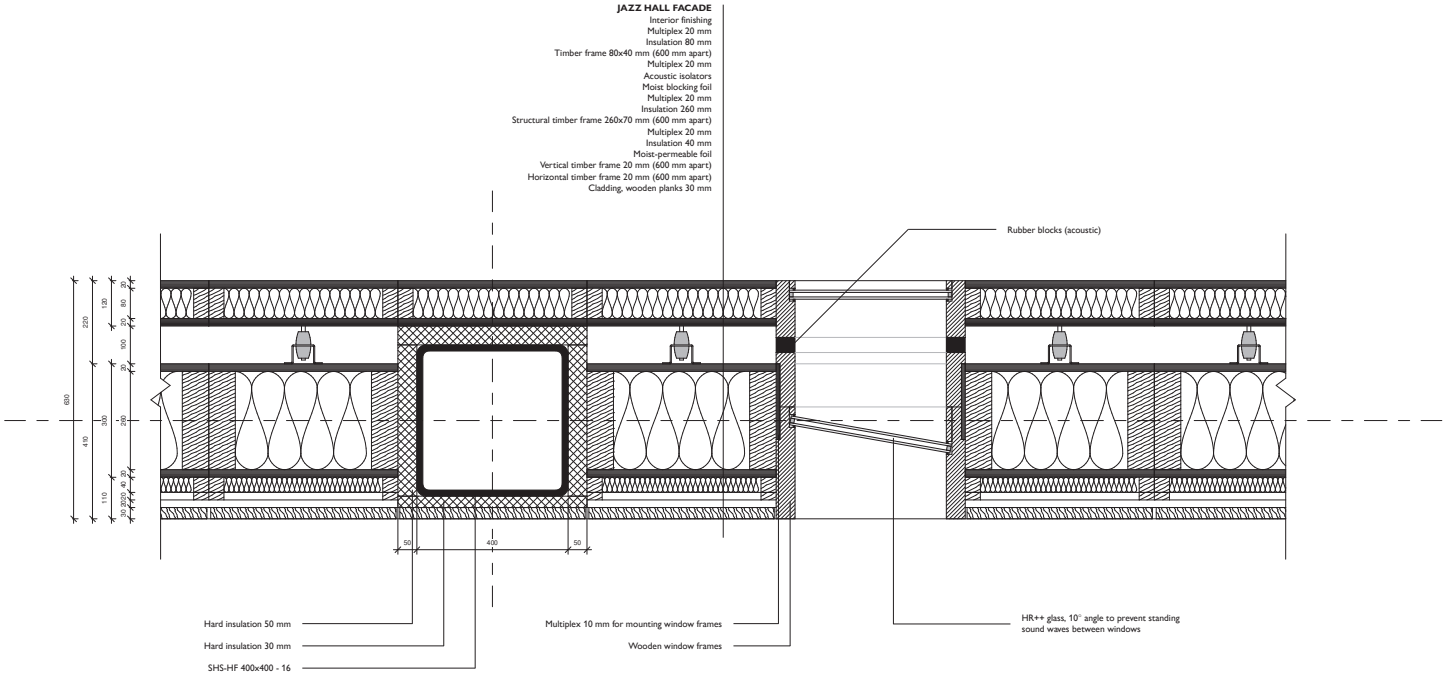
Scale
1:15 (90%)



8. CLIMATE FACADE - GLASS ROOF

11.68.
Vertical detail of the connection between the climate facade and the glass roof.

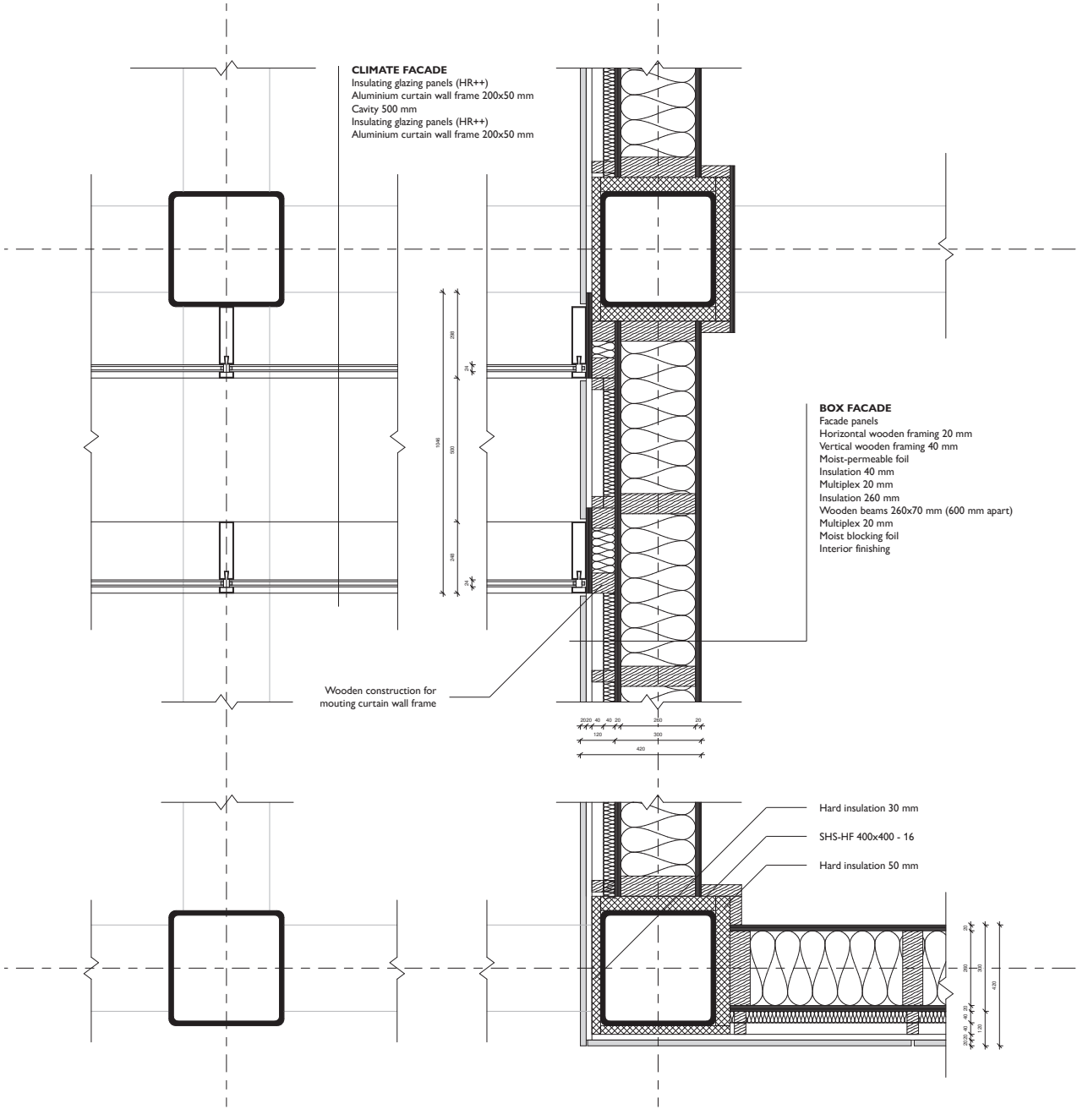
Scale
1:15 (90%)



9. HORIZONTAL: JAZZ HALL FACADE

11.69.
Horizontal detail of a part of the jazz hall facade.

Scale
1:20

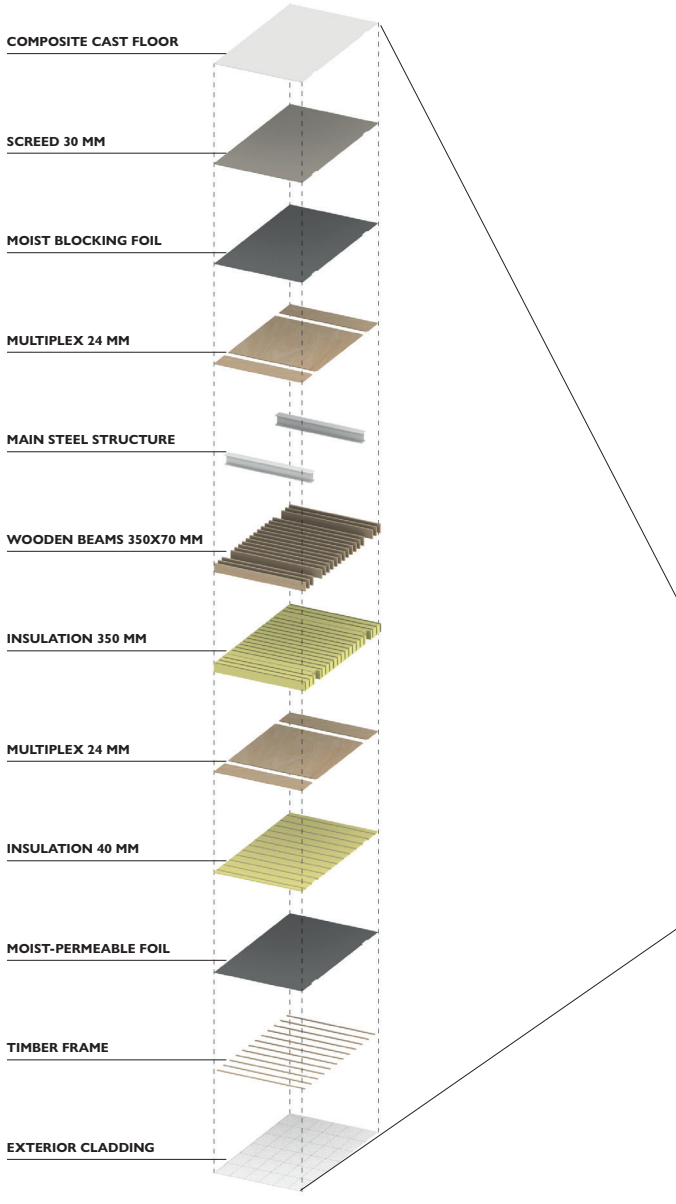


10. HORIZONTAL: CLIMATE FACADE - BOX WALL

11.70.
Horizontal detail of the connection between the climate facade and a general box facade.

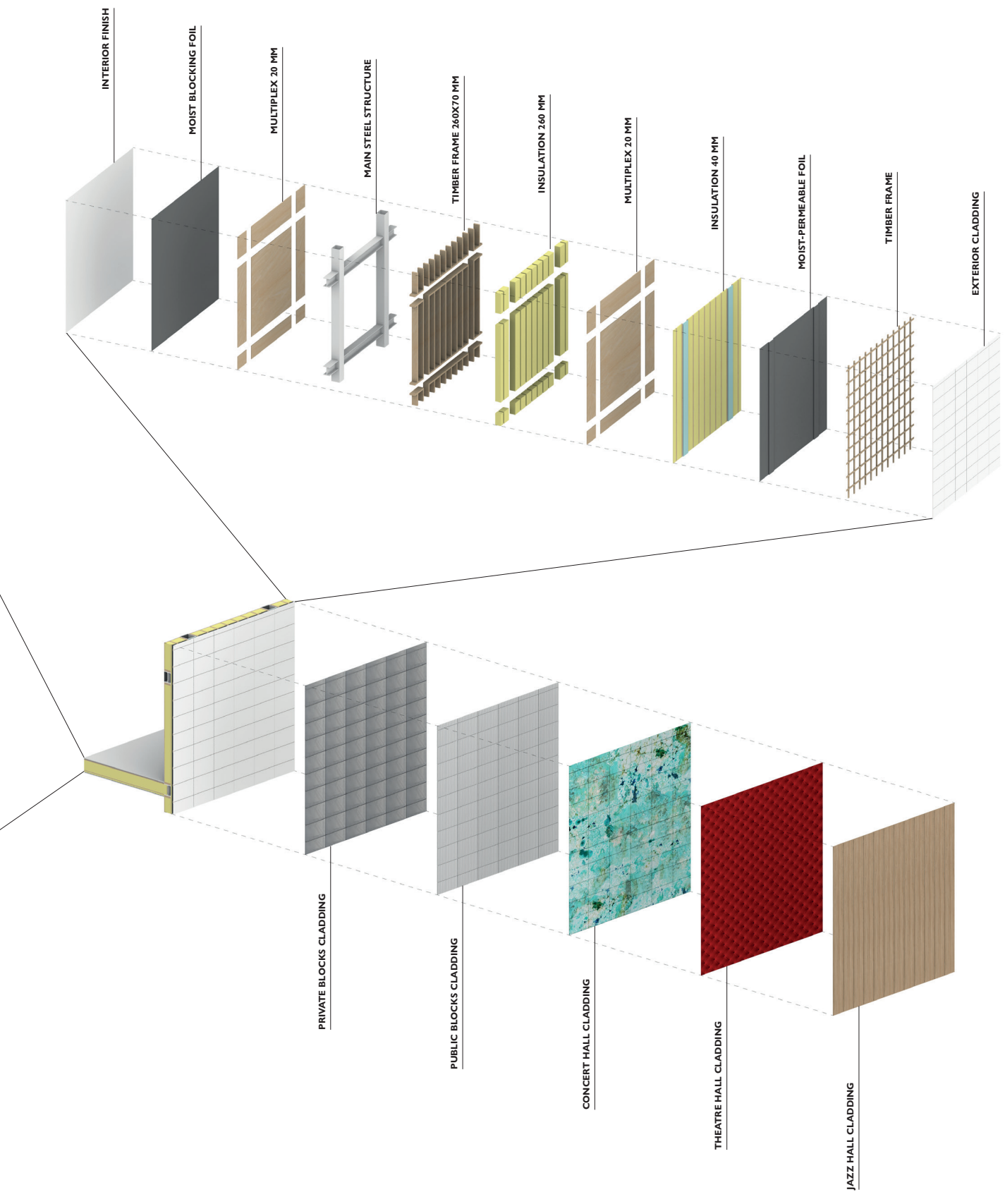
Scale
1:20 (90%)

GENERAL BOX - CONSTRUCTION

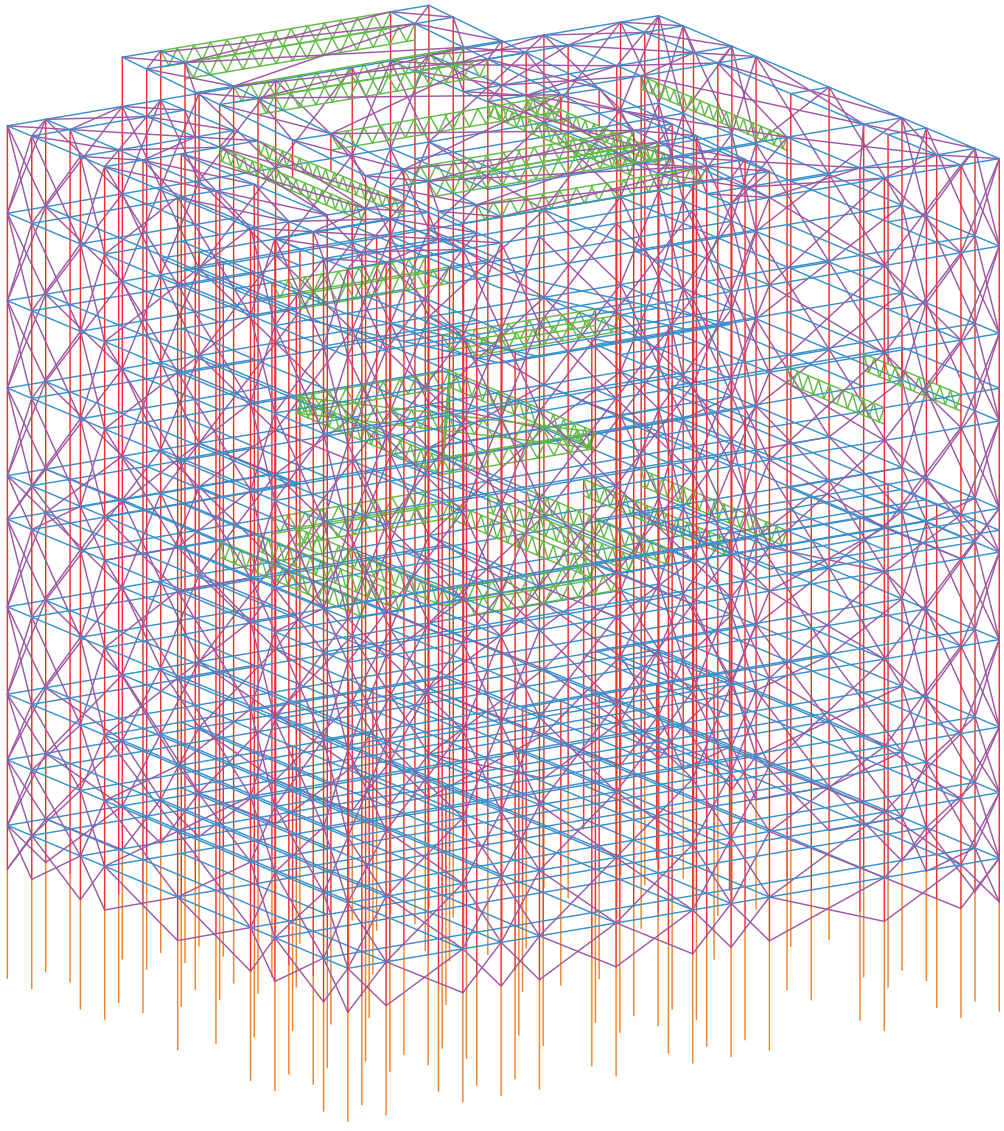


EXPLODED AXO OF WALL AND FLOOR BUILD-UP

11.71.
Exploded axonometric scheme showing the layers of the wall and floor construction of a box.

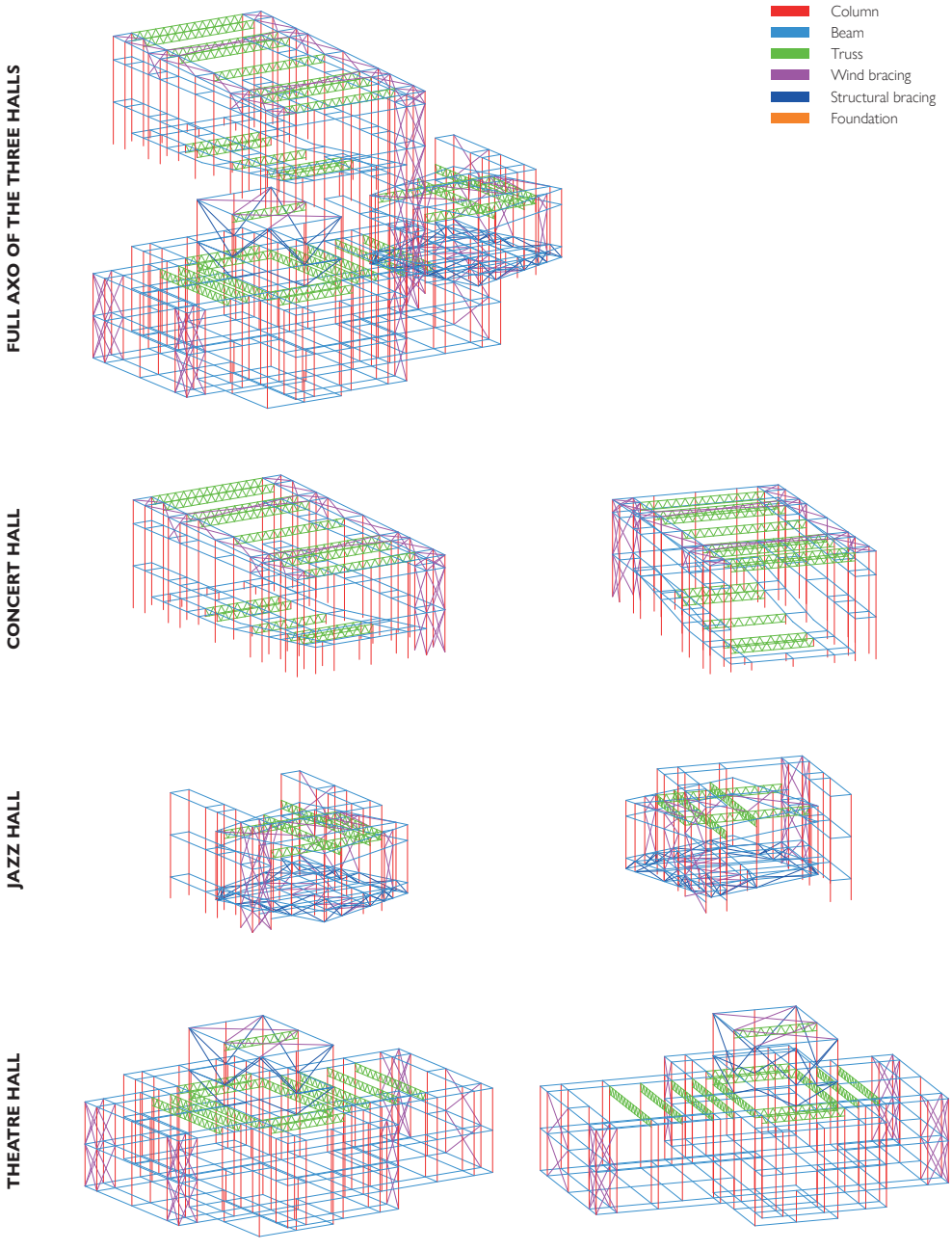

INTERIOR FINISH
MOIST BLOCKING FOIL
MULTIPLEX 20 MM
MAIN STEEL STRUCTURE
TIMBER FRAME 260X70 MM
INSULATION 260 MM
MULTIPLEX 20 MM
INSULATION 40 MM
MOIST-PERMEABLE FOIL
TIMBER FRAME
EXTERIOR CLADDING
PRIVATE BLOCKS CLADDING
PUBLIC BLOCKS CLADDING
CONCERT HALL CLADDING
THEATRE HALL CLADDING
JAZZ HALL CLADDING

CONSTRUCTION



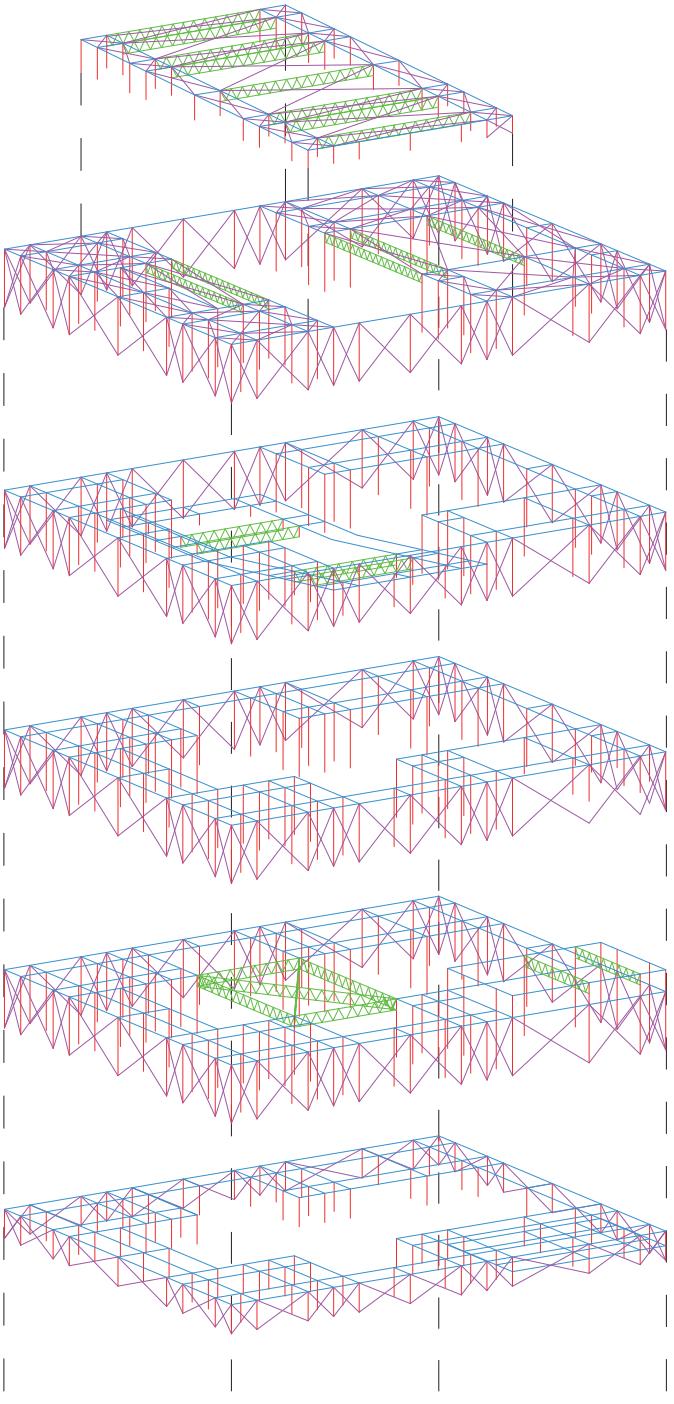
11.72.
Complete wireframe axonometric overview of the construction.

Scale
1:500 (75%)

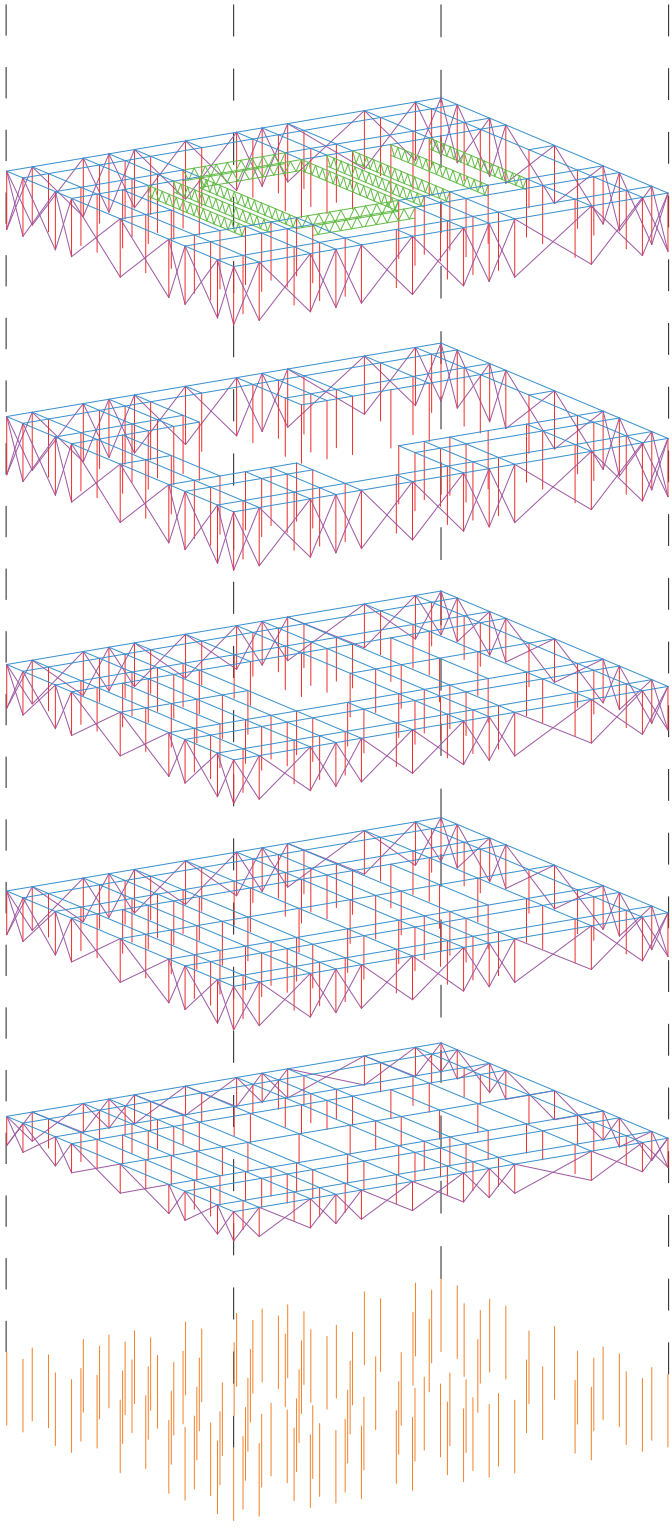


11.73. t/m 11.79.
Wireframe axonometric overview of the construction of the concert halls, isolated.

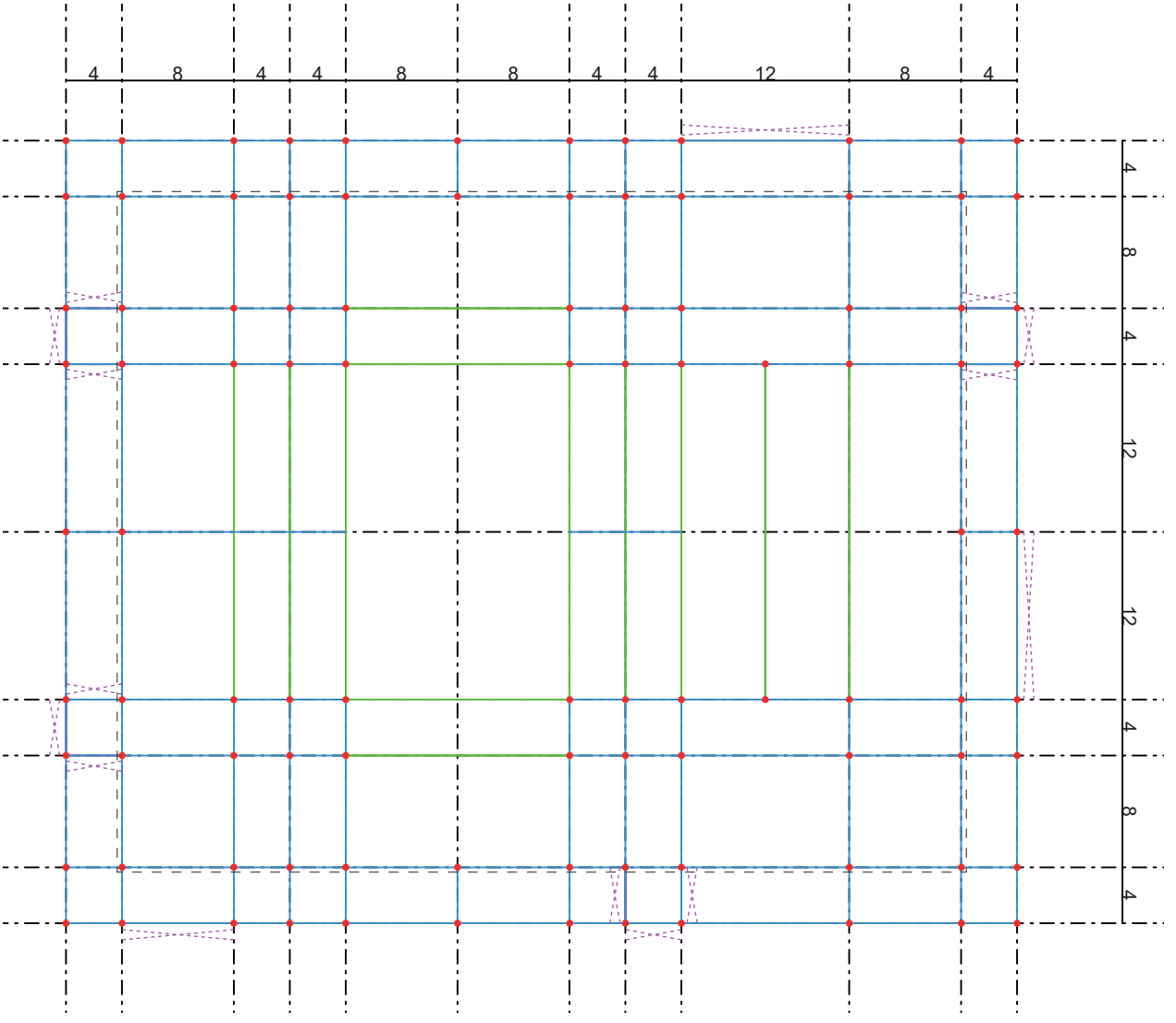
Scale
1:1.000 (75%)



11.80.
Exploded wireframe axonometric overview of the construction, per level.


Theatre hall
Theatre hall
Theatre pit
Entrance area
Basement
Foundation
Column
Beam
Truss
Wind bracing
Foundation

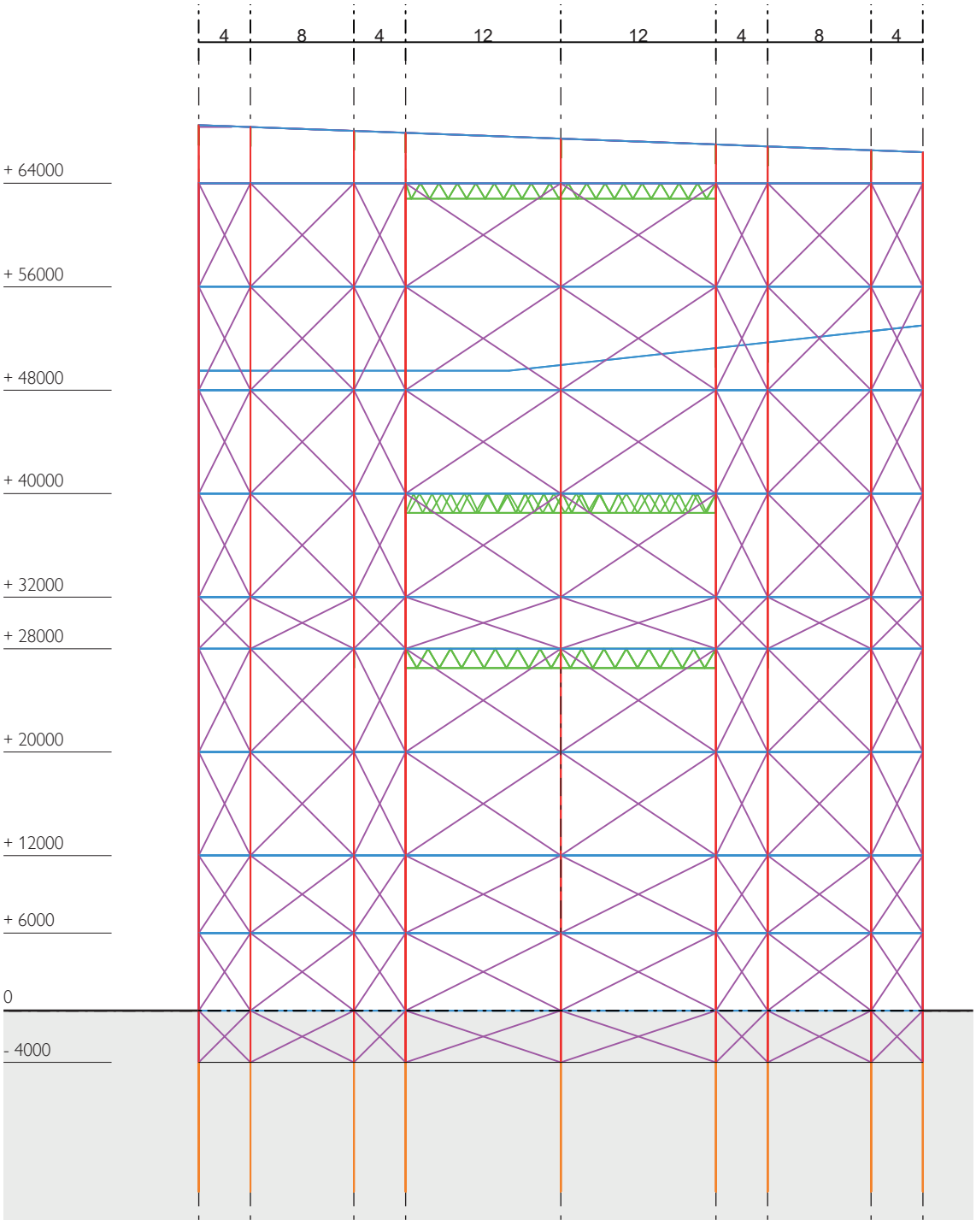
Scale
1:1.000



11.81.
Typical construction plan.

11.82. (right page)
Typical construction section.

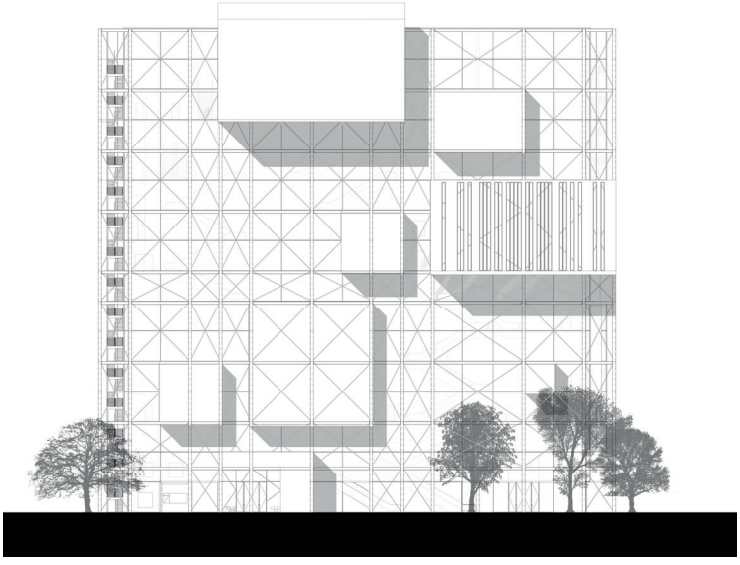
Scale
1:500

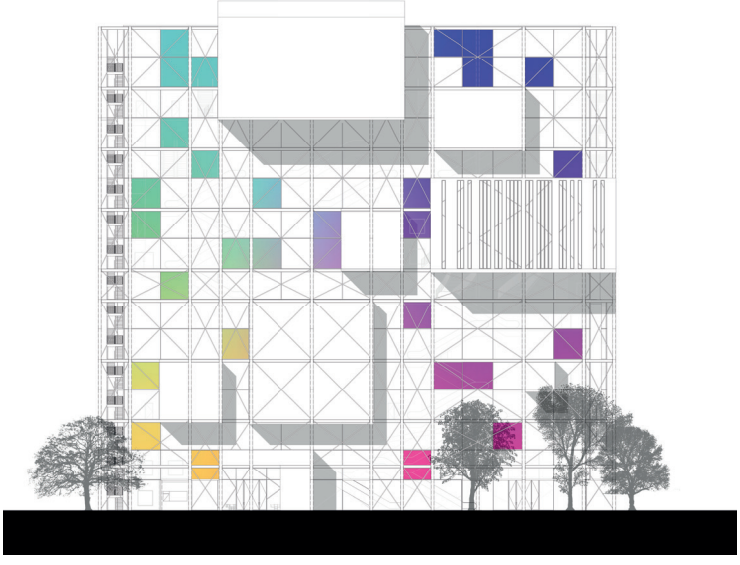


Column
Beam
Truss
Wind bracing
Foundation

Scale
1:500

SHADING SCREEN PIXELS

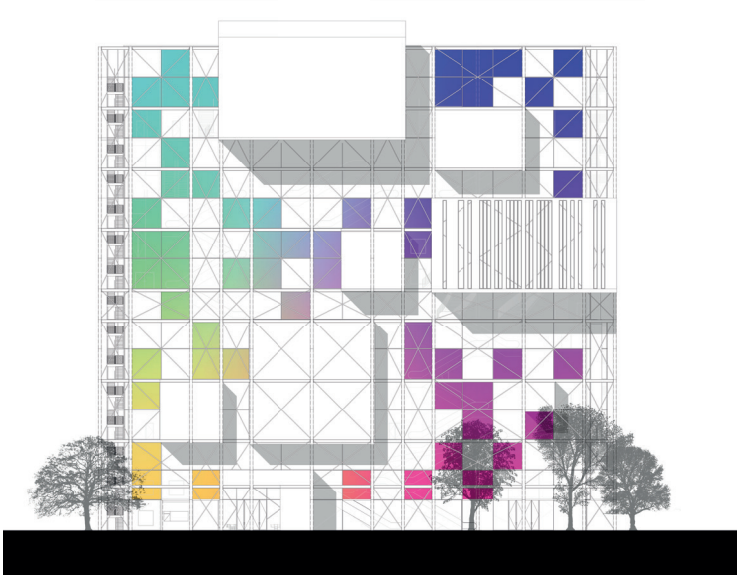


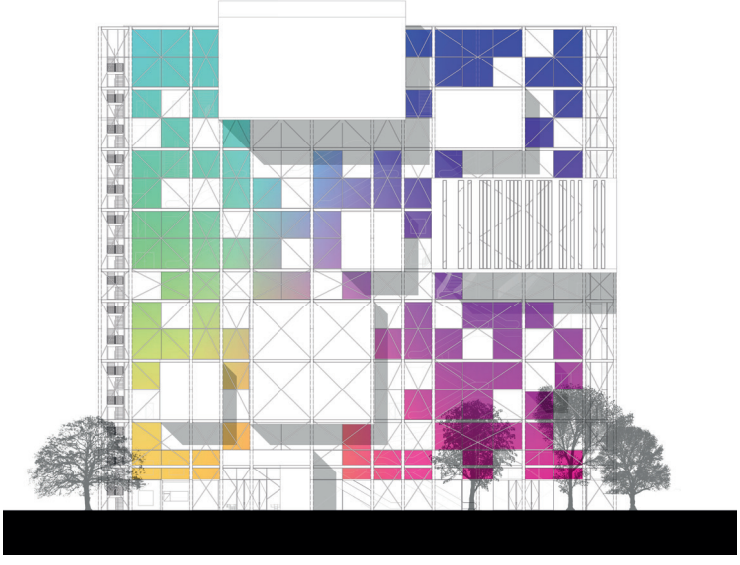


11.81. (top)
All automatic roller blinds up, shading is provided only by overhanging masses and by trees.

11.82. (bottom)
A few roller blinds down providing a bit of shade. The fabric has the same image / colour as the festival terrain floors.

Scale
1:500





11.83. (top)
Some roller blinds down, providing a bit more shade. A pixelated facade becomes visible.

11.84. (bottom)
Quite a lot of roller blinds down, providing a lot of shade. Due to the image on the screens, the facade itself resonates a festival-vibe as well.

CLIMATE FACADE

HR++ glazing with protective coating, blocking a substantial amount of heat radiation.

The construction (and also installations) are completely visible, adding to the notion of a festival and the building as a machine.

Mesh pathways are installed on every level, for cleaning and maintenance purposes.

At the same place, on every level, automatic roller blinds are placed, to block direct sunlight when needed.

Balconies provide shading on the facade.

On every level, hot air can naturally exit the building by the chimney effect of the double facade. These louvres are mechanically controlled.

Double facade starts at the first floor, allowing cool air to enter the cavity while also creating a more transparent entrance at the ground floor.

Interior trees and plants improve the interior climate.

Reclaimed concrete slabs from the waste facility are used as pavement around the building.



11.85.
Climate facade fragment with all its aspects.



Volumes that stick out from the building provide natural shading, reducing the sun load.

Screens in their rolled-out state will block sunlight and create a colourful, pixelated facade, contributing to the festival atmosphere.

Automatic ventilation louvres are placed at the top of a glass facade part, to allow for warm air to exit the cavity of the double facade.

Trees cool down the environment and provide shading (on the ground floor and on the facade).

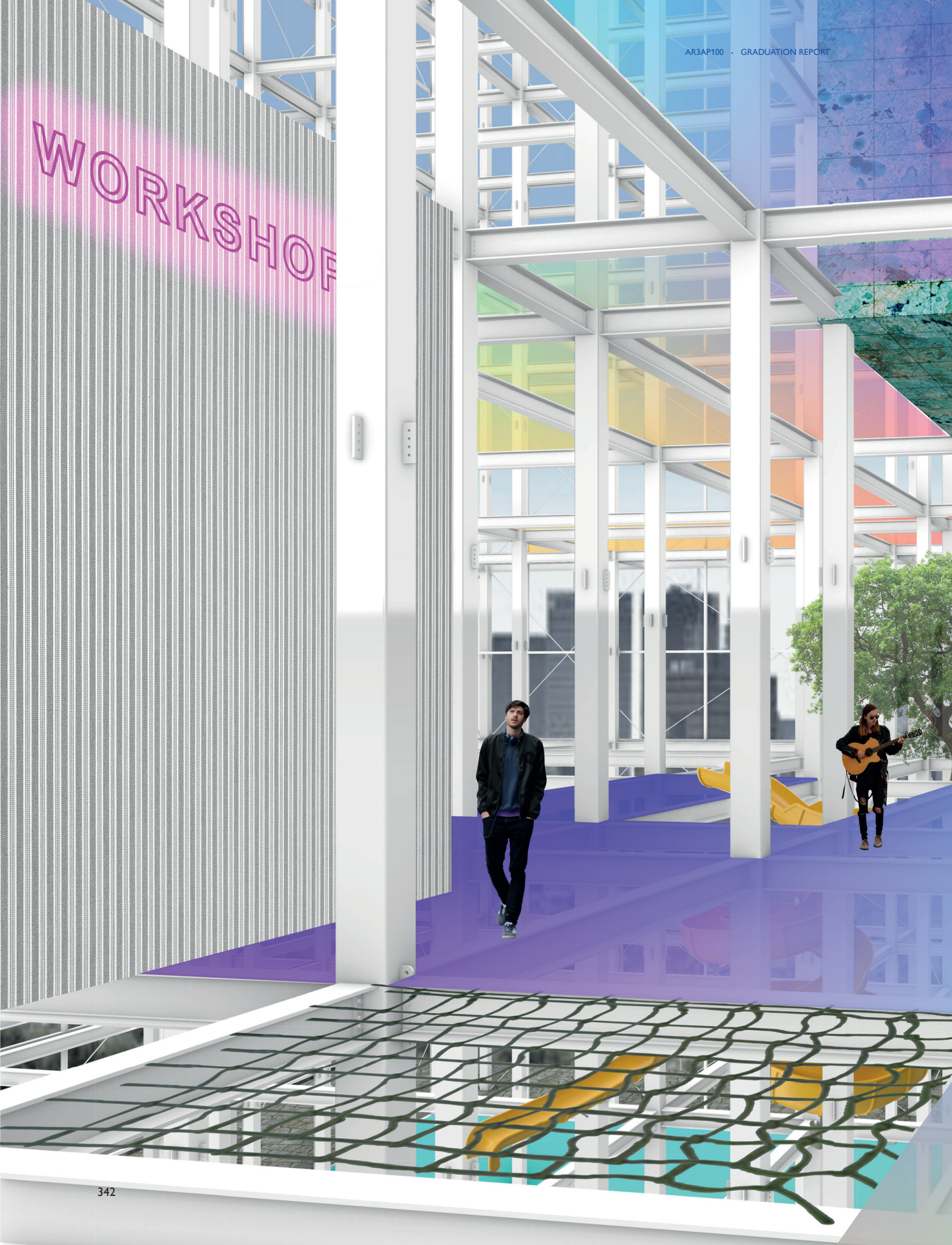
Bracing all around the building has a structural as well as an architectural reason. It is needed to provide stability and the industrial and diamond pattern aesthetic is directly related to the context.

Openings to the cavity (both from inside and outside) are operated mechanically, making the facade fully adaptable to changing weather conditions.

In a fully closed state, air inside the double facade will not move and therefore act as an insulating buffer which gets heated up by the sun, reducing the heat demand in winter.

When the ventilation louvres are opened, air will naturally travel up, creating natural ventilation and extracting hot air from the building (chimney effect), reducing the cooling demand in summer.

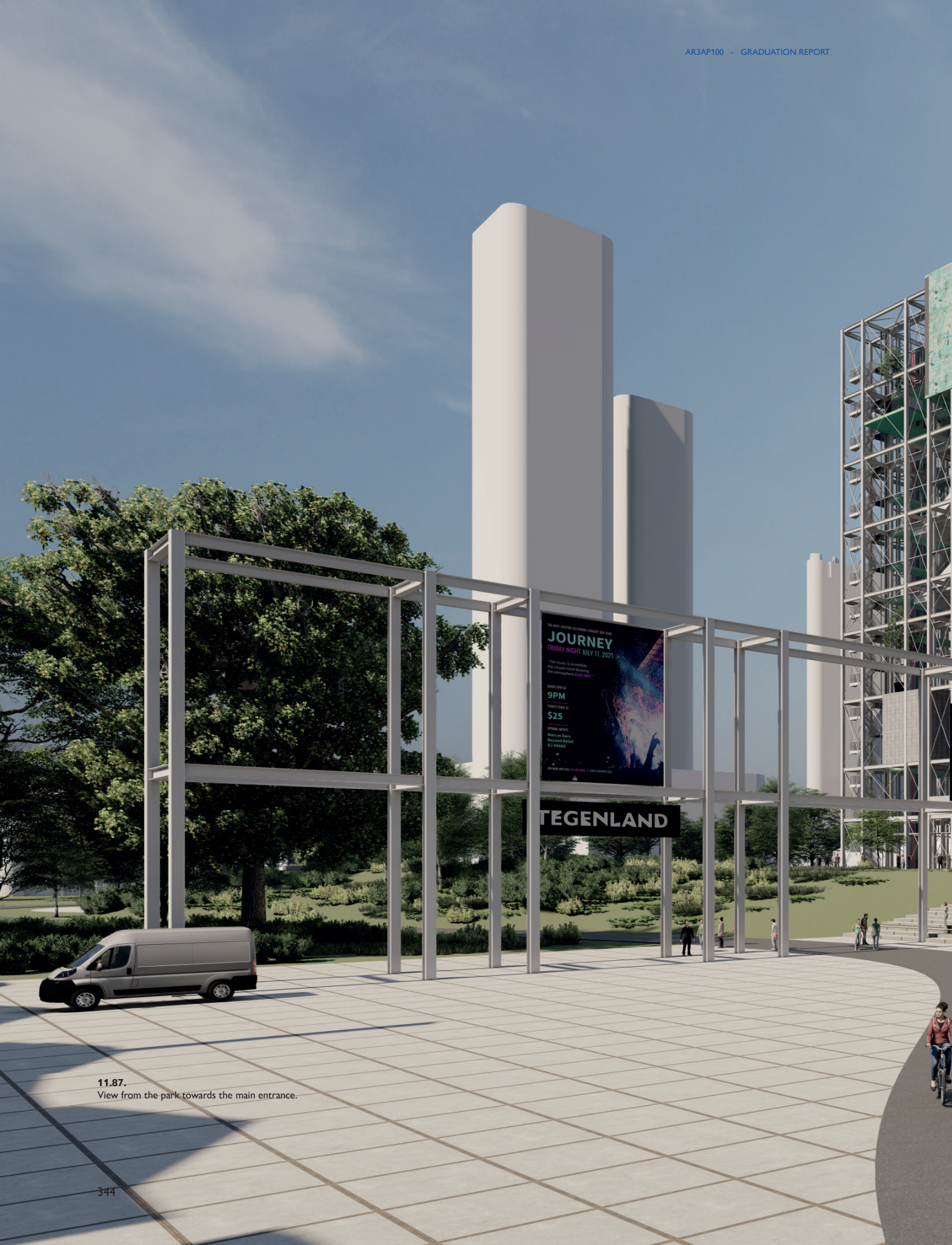
Plants and grass cool down the environment and make sure cool air enters the double facade.


WORKSHOP



IMPRESSIONS

11.86.
Collage impression of the interior festival terrain.

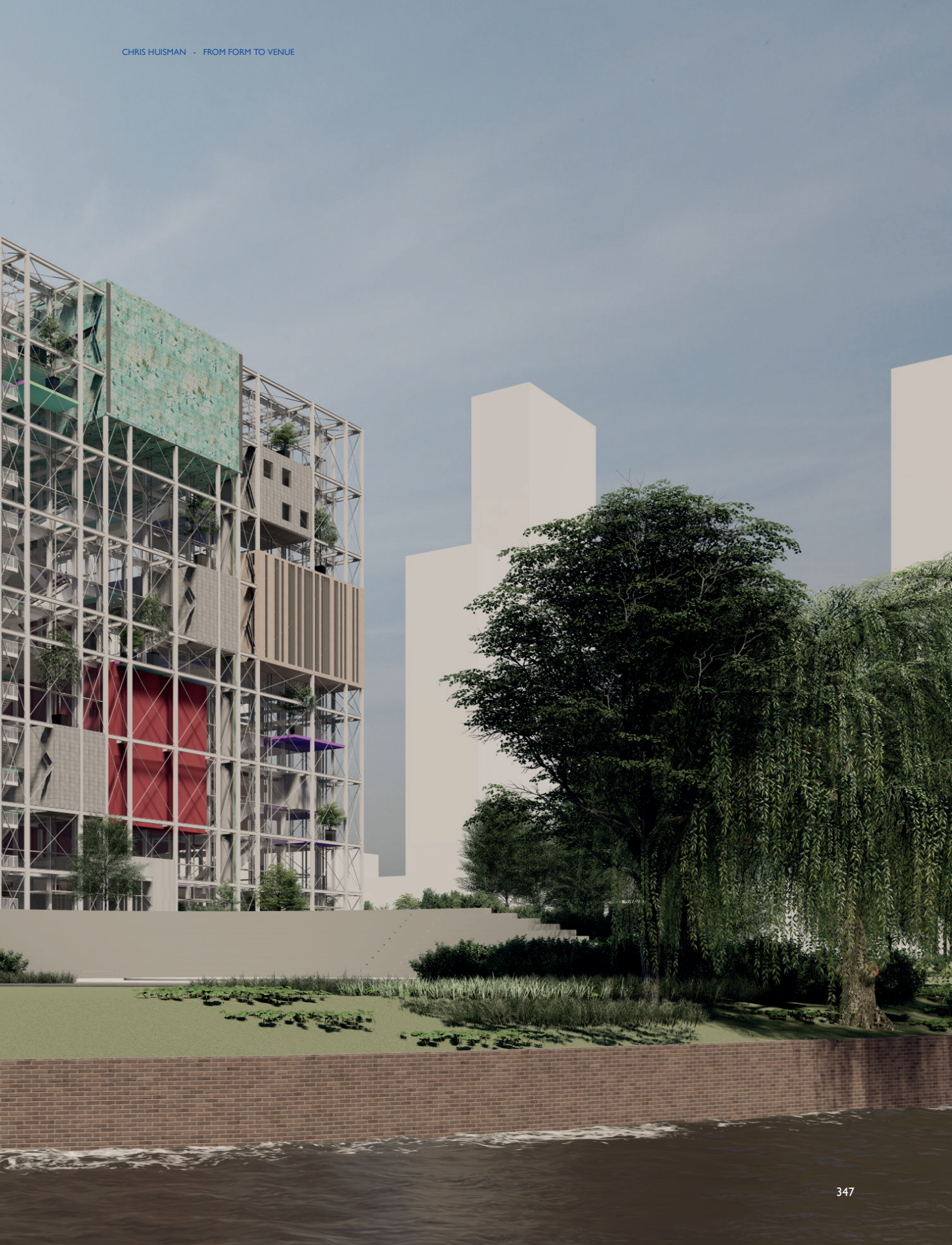


11.87.
View from the park towards the main entrance.



11.88.
View from the water looking towards the whole building sitting in the park.







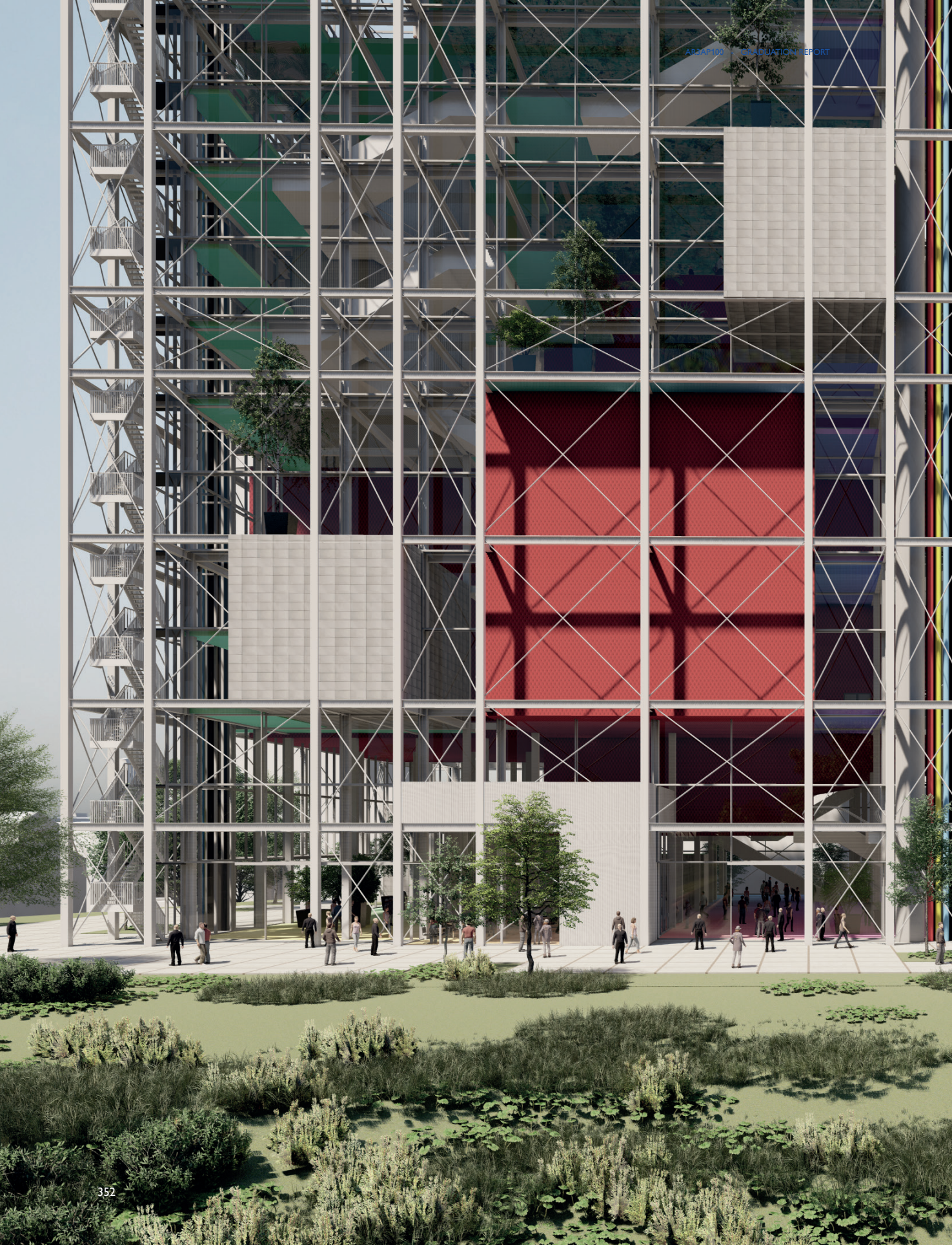


11.89.
The other side of the building with the street that gives access to the parking garage.





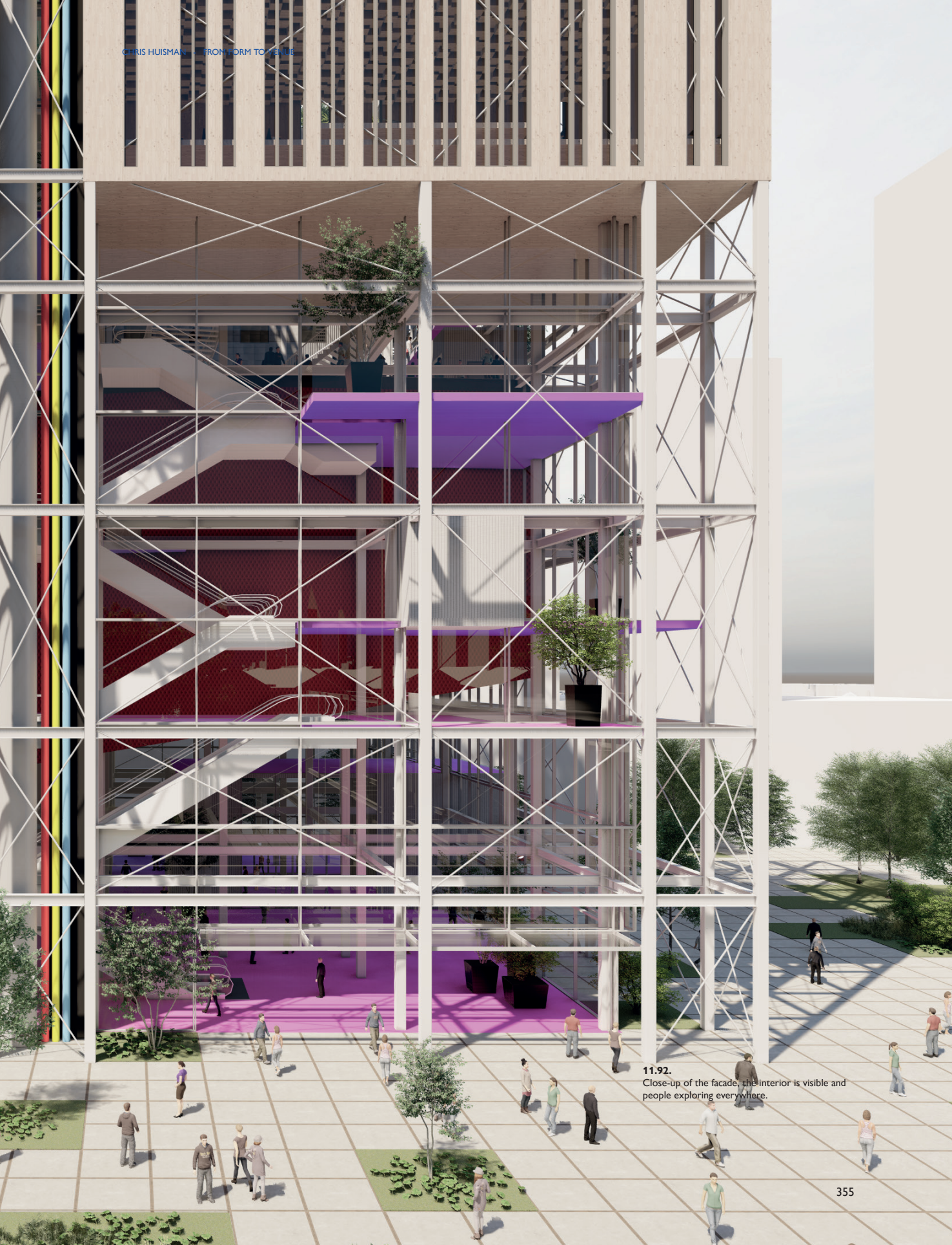
11.90.
The building seen from the park.





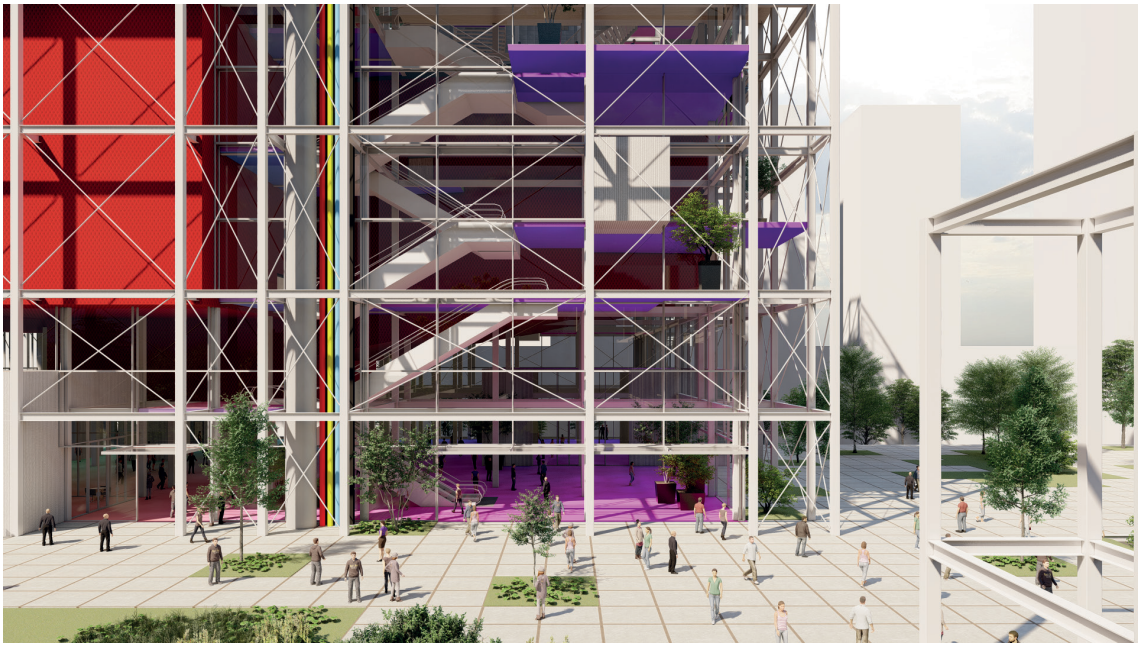
11.91.
View towards the main entrance of the building.





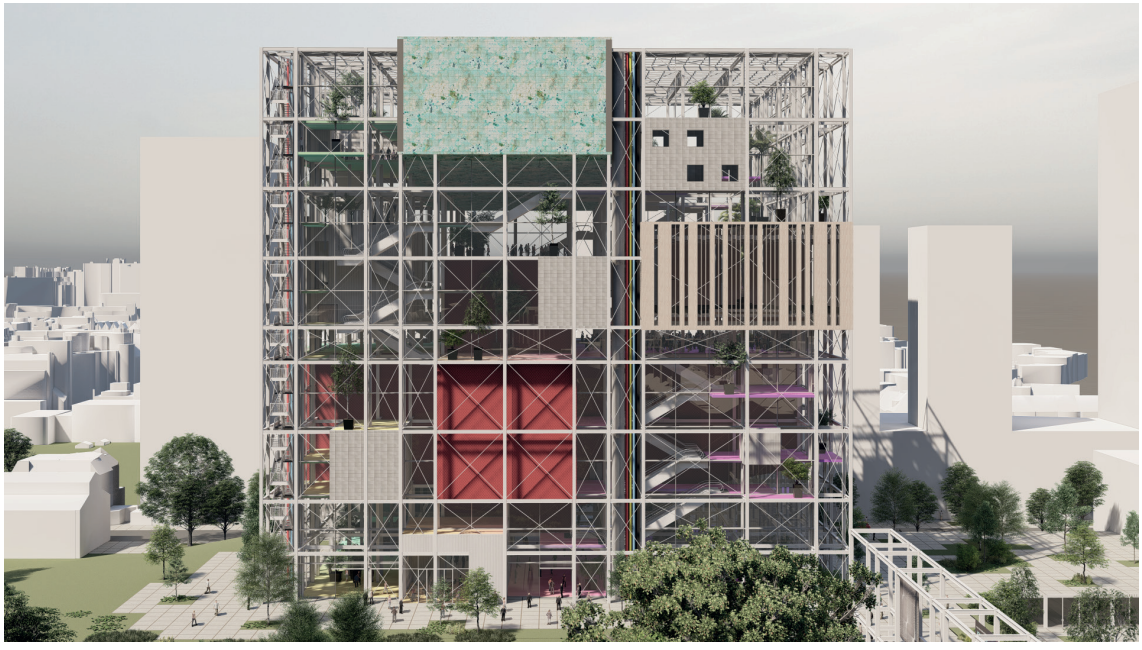
11.92.
Close-up of the facade, the interior is visible and people exploring everywhere.





11.93. (top)
The building seen from the park.

11.94. (bottom)
Close-up of the facade and the entrance area.

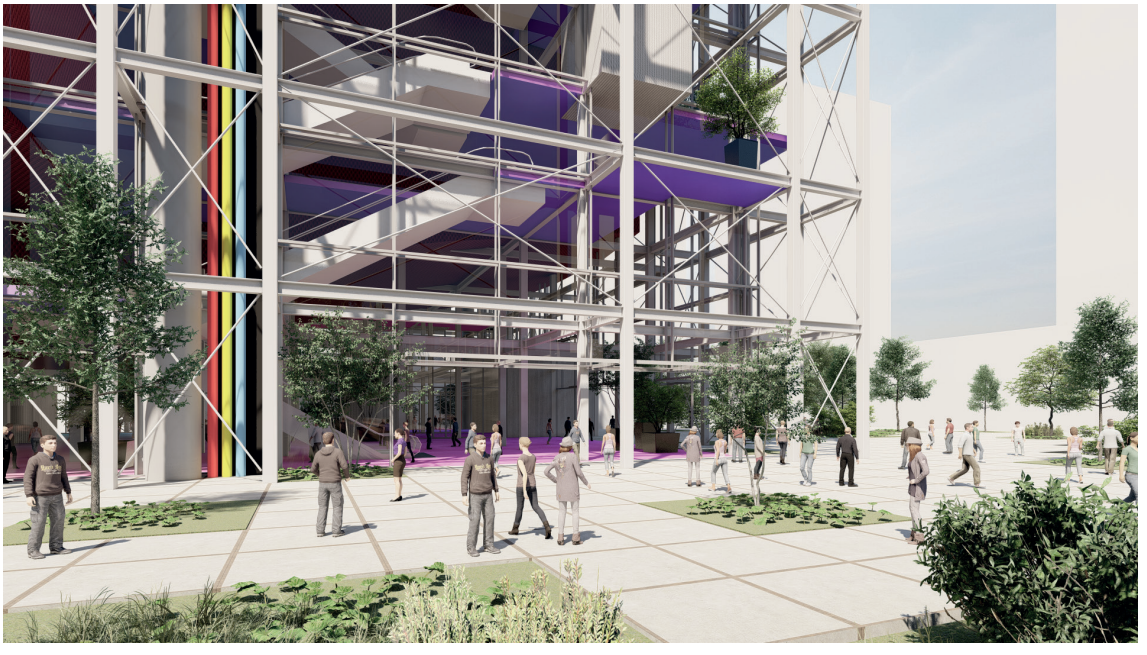




11.95. (top)
Overview of the south facade.

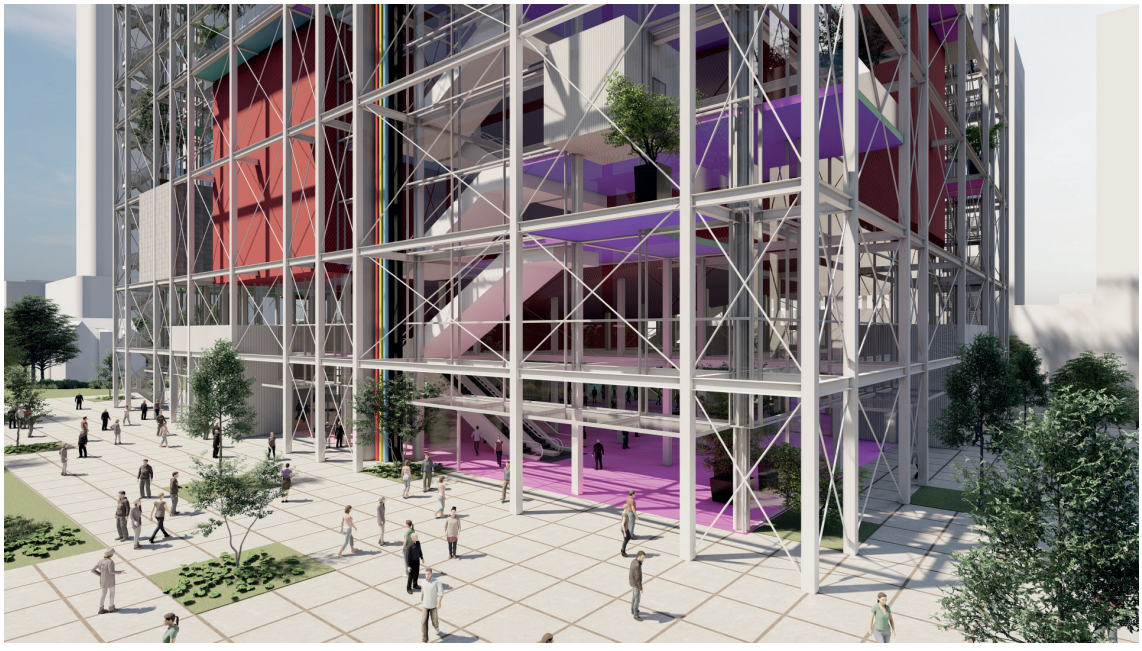
11.96. (bottom)
The building seen from the park.





11.97. (top)
The building seen from the park.

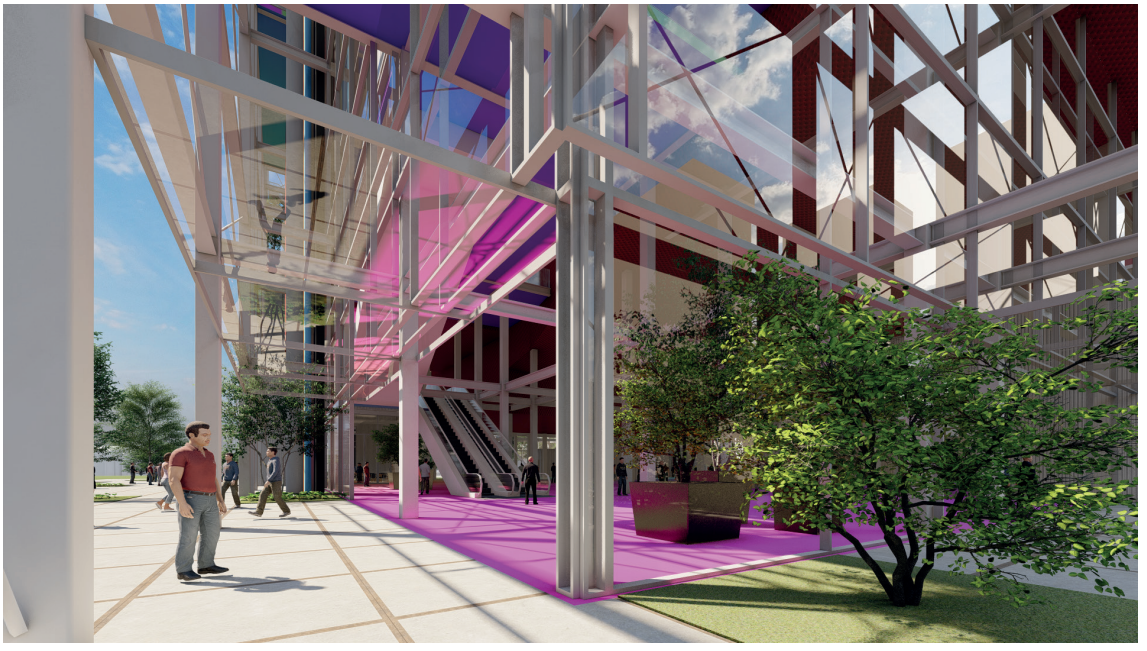
11.98. (bottom)
Close-up of the facade and the entrance area.

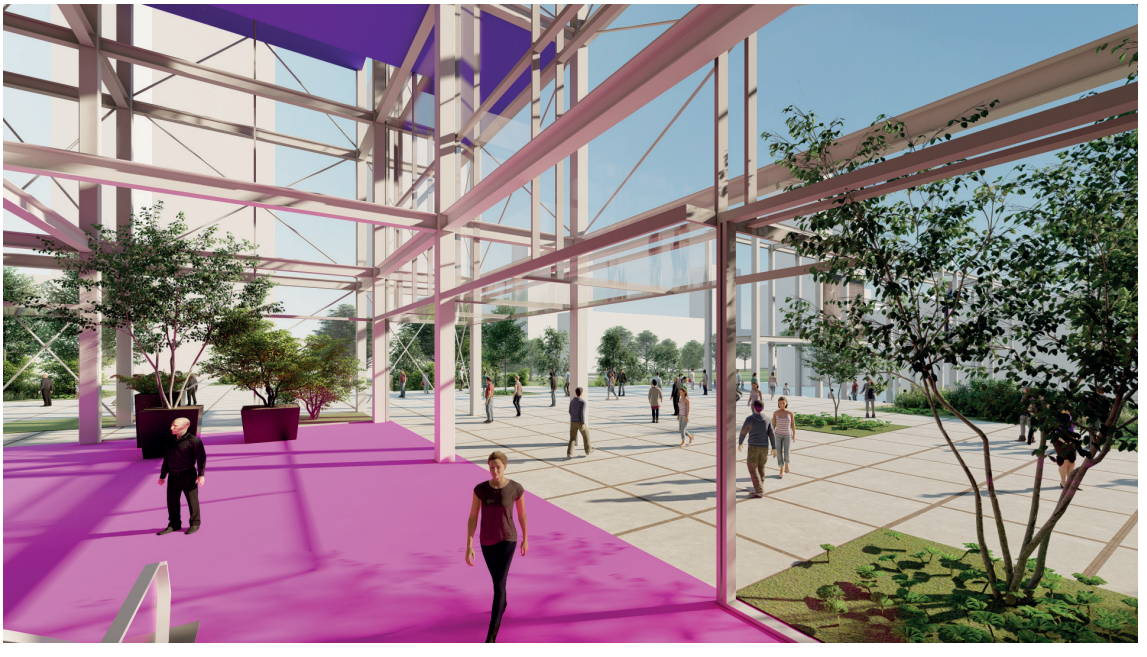




11.99. (top)
Close-up of the facade and the entrance area.

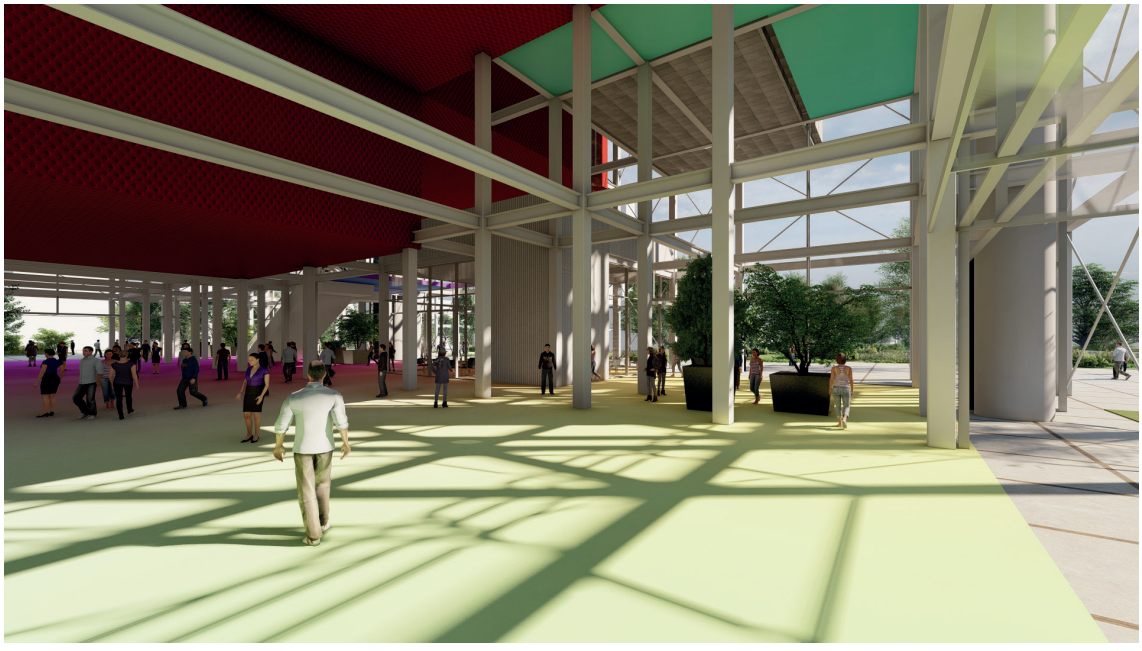
11.100. (bottom)
Close-up of the facade and the entrance area.





11.101. (top)
Exterior view of an entrance.

11.102. (bottom)
Interior view of an entrance.





11.103. (top)
Interior view of the entrance hall.

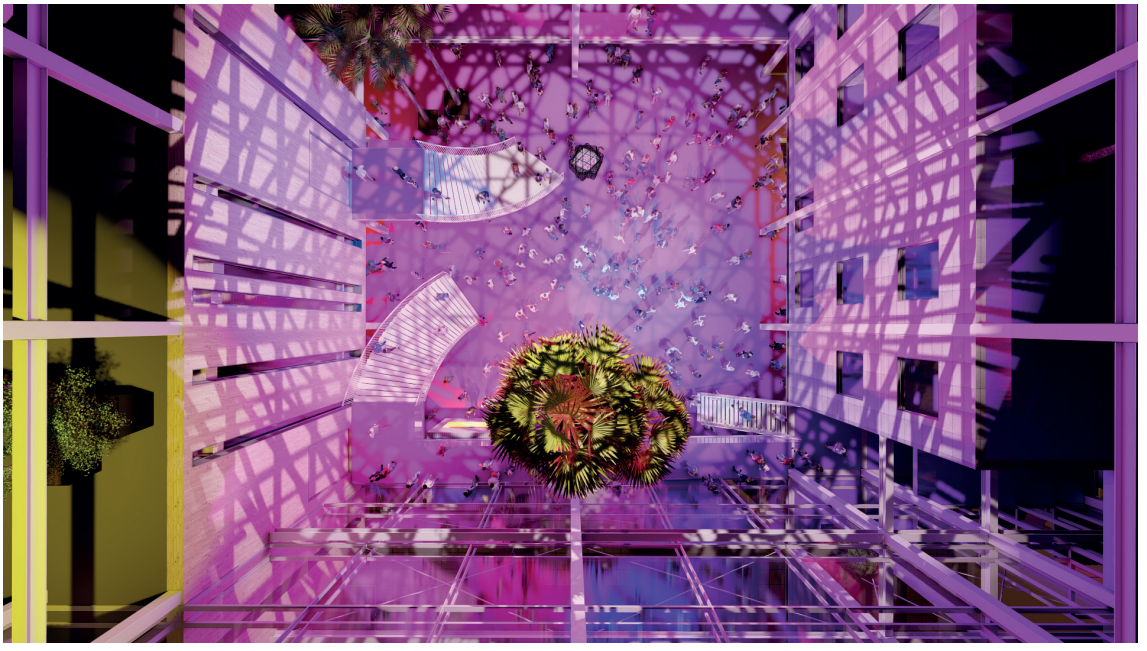
11.104. (bottom)
View of one of the foyers within the festival space.





11.105. (top)
Night view: party going on in the festival space.

11.106. (bottom)
Night view: party going on in the festival space.





11.107. (top)
Night view: party going on in the festival space.

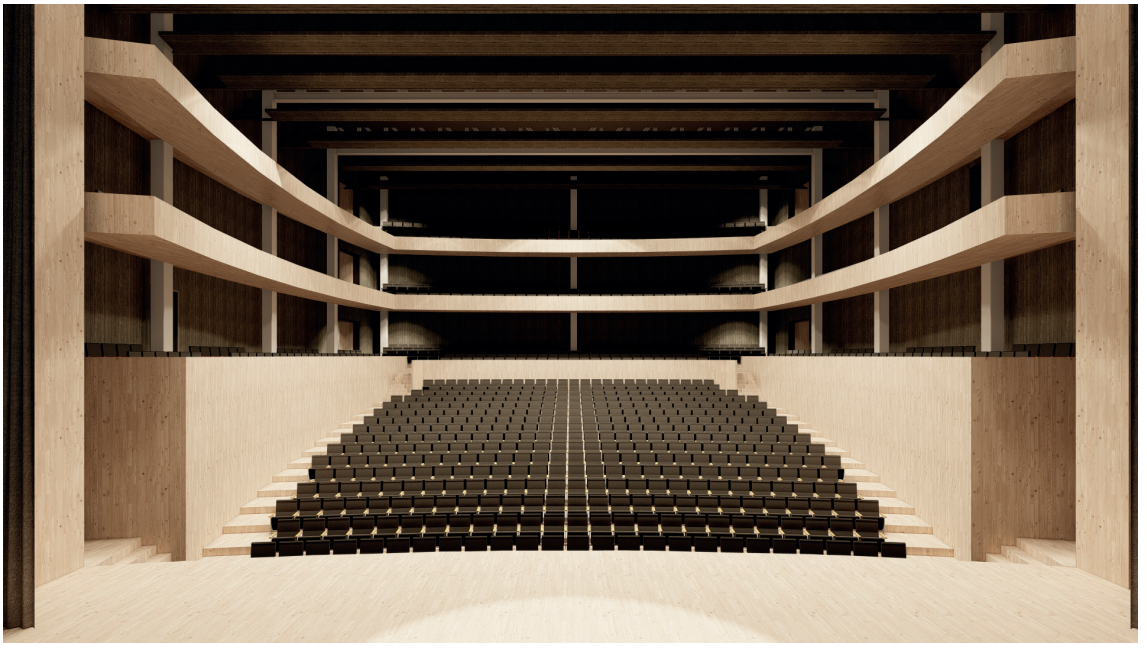
11.108. (bottom)
Night view: party going on in the festival space.



11.109.
Night view: party going on in the festival space. This space also serves as foyer for the jazz hall and as general space for workshops, conferences, markets, business fairs, etc.

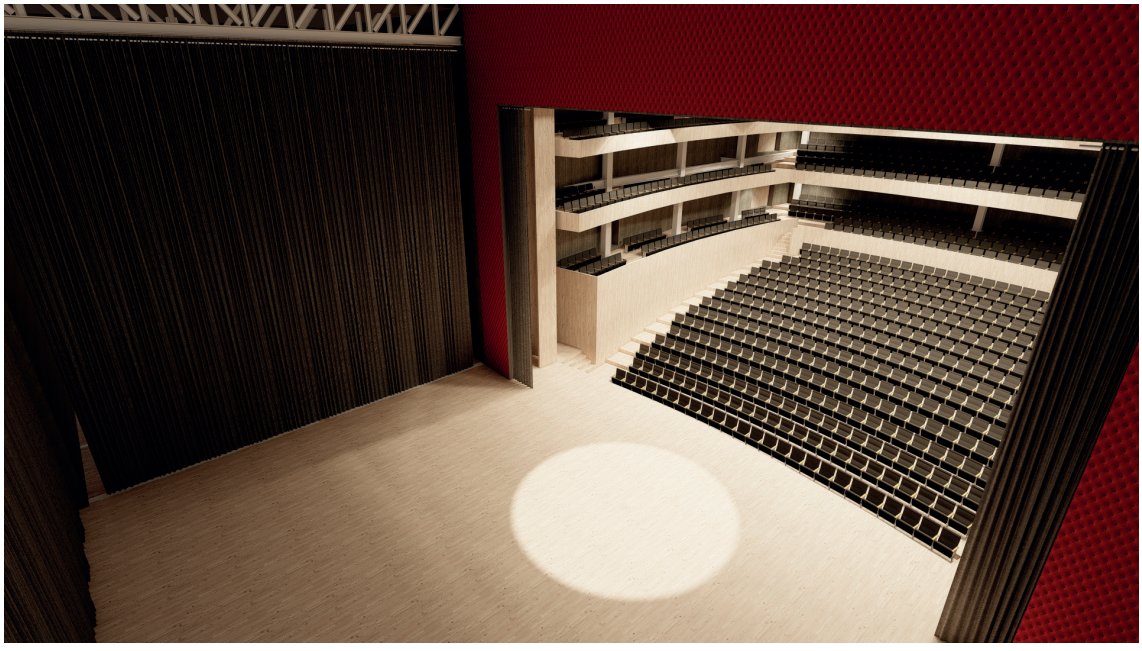


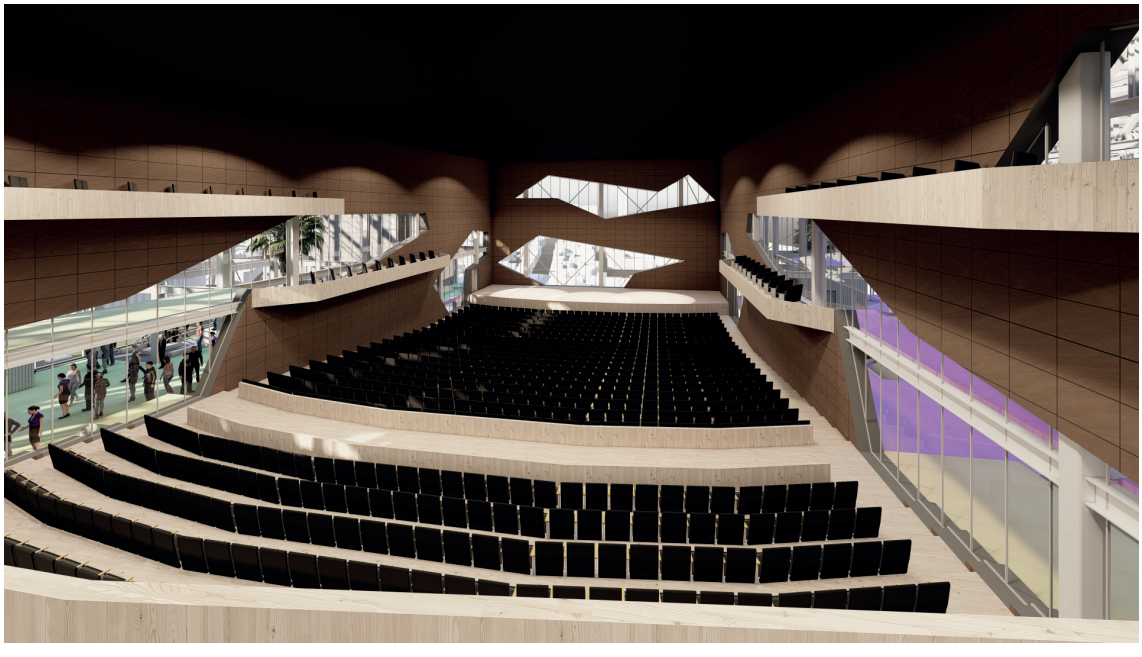




11.110. (top)
Interior view of the jazz hall.

11.111. (bottom)
Interior view of the theatre, looking at the audience.





11.112. (top)
Interior view of the theatre hall, overview.

11.113. (bottom)
Interior view of the main concert hall.

12. REFLECTION

REFLECTION

This year's topic of the Public Building graduation studio: "MUSIC MARVEL - music & popular culture re-wired" asked for research on and design of a music venue, located in the Binckhorst, The Hague. My project, titled "*From Form to Venue, architectural form as an amplifier for music venues*" explores the role of architectural form as a device for strengthening a visitor's experience of a building. This reflection describes and looks back at the process of my graduation project on the basis of a couple of relevant topics.

THEORY RESEARCH & DELINEATION RESEARCH

The structure of the graduation project consisted out of three parts: Project Design (PD), Theory Research (TR) and Delineation Research (DR). In the first semester, time was equally divided between these three topics. The second semester was almost completely dedicated to Project Design. The goal of the Theory Research and Delineation Research "subcourses" was to place the main project of creating a Music Marvel in a broader perspective. This was done by for example obtaining more knowledge about music theory and history (TR) and analysing and interpreting several manifestoes in the architectural discourse (DR). To connect these theoretical topics to the actual designing of a music venue in the Binckhorst, students were asked to research and map the design location in multiple ways.

The Theory Research part in itself was divided into two parts: lectures and readings about general information on music, and group research on sampling and mapping the site. The lectures and readings were helpful for the project in the sense that they provided a solid basis or frame of music theory which could easily be applied into the process of designing a music venue. With noticing the relevance of this rather non-architectural background information, it convinced me even more how important it is to obtain general information about a subject before even starting a design project. The second part of the Theory Research course, about analysing the site, was relevant because you were forced to look at the context in a different way than usual. Instead of mapping the larger elements of a site (like a road network, building blocks, etc.), the focus was put on obtaining small samples of the site, related to your senses. This meant that as a group, we mapped not only visible objects but also sounds and smells. Similar to the general information on music, this was helpful to get a better understanding of the possibilities the site and the project has to offer.

The Delineation Research course on the other hand had a direct relation to the field of architecture. Each two weeks, an (urban) manifesto was presented and projected on the design location. Similar to the sampling, this

forced us to interpret and play with the site in unusual ways. Eventually, this artistic and abstract approach let to the creation of an own design manifesto about the Binckhorst. With this manifesto, I explained the current situation of a cluttered and not accessible site which is in need of restructuring. By mixing program and removing the borders, the idea of the Binckhorst as a festival terrain was presented. This fascination of a lively and multifunctional open space became one of the key aspects of my design.

PROJECT START

Simultaneously with the TR and DR courses, Project Design started from the first week with exploring the site, describing the ambitions for the project and doing group research on case studies. The case studies, in total 16 music venues of all sorts from all over the world, where analysed with the whole group of students on the topics City, Connection and Culture. The goal of this was to quickly get an understanding of how music venues work on all levels, from its relation to the urban context to detailed acoustical solutions. However, because of the group's ambition to analyse as many aspects as possible, the work load was quite high and this resulted in not so extensive conclusions as most time was consumed by producing analytical drawings of the venues.

After analysing the case studies as a group (which was completed around P1), focus shifted towards describing what fascinated you, what your project should be about and what it should contain. My ambition was to design a large, hybrid venue which feels like a festival: different stages, multiple genres and all within a large, open space. This was given shape using one of the most fundamental elements in architecture: form.

Form as a main topic for this project comes from a personal fascination on this aspect. With previous projects I have used form as a tool for architectural expression and I wanted to develop this more. The idea of creating a festival emerged from the research on the site, noticing its possibilities and making a design manifesto which proposed to turn the Binckhorst into a festival.

RESEARCH ON FORM

Initially the focus was put on researching form. What forms are present around the design location, what forms do music venues have and how can form contribute to the experience of a music venue? In the design description of my project the following was written:

> *"FORM is the main topic of research and will also be one of the main topics for the design itself. It is a festival of forms, distinct masses, each one of them with their very one characteristics, float around in a space where visitors can explore endlessly. Since concert halls (and theatre halls) usually have a strong focus inwards, they can be very sculptural, strengthening the experience of unique forms composed together in a large festival space."*

In line with this year's Public Building studio topic and together with group research done during the Theory Research course, the analogy of an amplifier was developed. An amplifier is a device for making weak signals audible by increasing the power of these signals. In architectural terms, this means that the word "amplifier" can be used to describe strengthening, making visible and adding (iconic) value. The notion of an amplifier was then combined with the topic of form: what if form is the amplifier? With this, the following research question was asked:

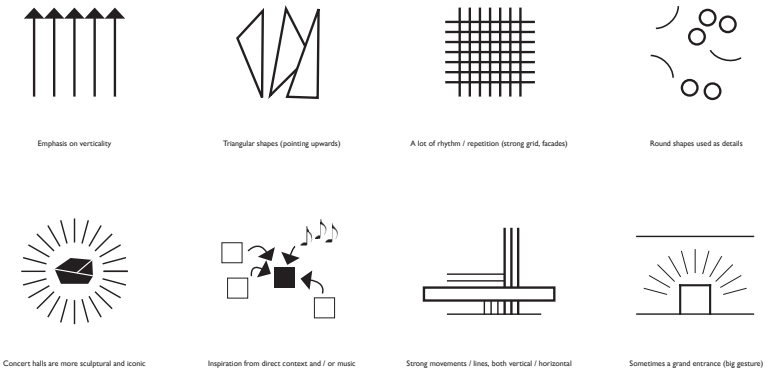
How can form amplify a building for music?

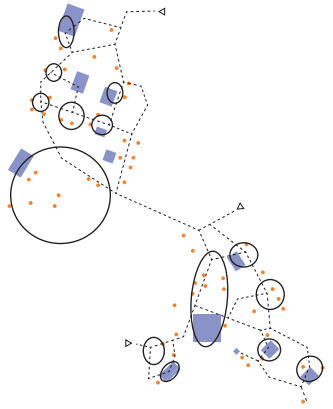
The research on form was structured as follows:

1. Form theory: what do physical forms do in the sense of perception and experience?
2. Music venue typology: what aspects of a building for music can and need to be amplified and how can form contribute to that?
3. Site: what qualities and forms are present on the site and can be amplified by a building for music?

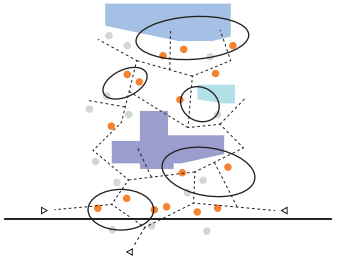
The idea was to use several methods of research to find an answer to these questions: literature reviewing, additional case study analysis and design research. Looking back at the research aspects during my process, it becomes clear that mostly design research was conducted and literature and case studies not so much. I have the feeling that this was not so much a problem for the design progress but more a natural development of the whole process. The research that was done about forms on site and forms of other music venues did however give some clear conclusions about what to design with, as can be seen below.

12.01.
Icons of form principles derived from site analysis (top row) and form principles derived from case studies analysis (bottom row).





12.02.
Abstraction of the map of the Mysteryland festival, showing routes, stages (blue blocks), other activities (orange dots) and open spaces (circles).



12.03.
Concept of the building translated into a festival space.

After this, the idea of distinct concert halls "floating" in a festival area was continued. By researching the ideal form of different venue typologies (a shoe-box concert hall, a theatre hall and a hall for chamber music), together with defining the program for the music venue, analysing the design location and conceptualising the idea of the building as a festival terrain, the design process slowly became more concrete.

FROM FORM TO FESTIVAL

As the design project evolved, more and more focus was put on the development of the idea of creating a festival and less focus was put on form, as at a certain point the forms became somewhat fixed. To get an understanding of how to create a festival, extensive research was done on festival terrains, how they work, of what elements they consist and how they are spatially planned. Also the different atmospheres a visitor can experience at a festival were researched. This part was quite exciting, as research was done on a topic that is not necessarily related to architecture. By projecting the findings from this research on festival terrains onto the building concept for my design, the concept and spatial qualities of my design became much stronger.

The concept of a festival translated into a building became more profound as the project evolved. At first, only the space in between the concert halls was seen as "festival space". Slowly, other aspects of the music venue were related to the concept of a festival as well, such as the program (place for activities like workshops for example) and the construction. At first, the idea of the construction was to create a specific construction for each concert hall, related to the atmosphere and typology of each hall. This however became extremely hard to work out and not realistic at all. The solution was found in the form of a superstructure, much like the scaffolding behind the stage decor at a festival. Because of its uniformity, it allowed for everything to take place within this structure.

CONCEPTS & IDEAS

A characteristic of my design process is that I tend to spend quite a lot of time on developing concepts and coming up with ideas of things that might or might not be integrated in the final design. The reason for this is that I like to approach architecture in a more abstract way (while always keeping realism in mind). This meant that, during tutoring, each week I produced conceptual schemes to explain my ideas. Because I would say I am quite ambitious, all sorts of ideas were explored, from adding swings, waterslides and a

little passenger train to using reclaimed wind turbine masts for the construction. This of course helped with making the design more exciting but the downside was that the design options did not really narrow down, as I would continue to explore more and more.

A second reason that explains this conceptual approach, is that I wanted to experiment on purpose. Mainly because it helped me to get a better understanding of abstract architectural concepts but also because there is enough room for experimenting and creating more extreme designs during your study. For me this was valuable because it allowed me to follow my intuition and focus on aspects that deeply interest me.

Another aspect that cannot go unnoticed, is the concept of multiplicity. In the Public Building studio, multiplicity is treated as a tool that should be integrated in the whole design process, as it adds value and makes design choices more justified because single design solutions can have multiple purposes. In my design, multiplicity is manifested in different aspects of the building. At first, within the program there is a lot of overlap and multiple use for single spaces and halls. The theatre hall for example can of course be used for theatre plays, but also for opera, musical, comedy, etc. The same goes for the festival terrain, which is an open space that can be used as a foyer, as terraces, as exposition space, as a market, as a workshop place, etc. Secondly, the construction is designed in such a way that it acts as a generic frame which is not only there for the structural stability, but it also provides all the services and possibilities for adding or removing. It is completely modular and demountable. In the third place, the facade has several purposes. It is a double glass facade which acts as a solar chimney. It is also a buffer zone between interior and exterior and it is completely transparent so the interior spaces get connected to the context and the festival terrain appears more open and visitors experience the space as endless.

IMPROVEMENTS

In general the process towards every deadline was very similar. Many time was spent on making concepts and creating more and more ideas and therefore relatively little time was spent on actually drawing the building. The reason of this is explained above, because of wanting to experiment. Because of this, I think the conceptual aspects of the project are quite extreme and elaborated but the concrete and technical elaboration is not as extensive as it could be. On the other hand, because so much time was spent on developing concepts, I think the argumentation behind my design choices is

pretty strong. For a future project however, I would create a more detailed planning and encourage myself to spend more time on concretizing my ideas.

When reflecting on the progression of the course, in general I am quite satisfied with the arrangement of the studio. The general context provided and the research done in the first semester seemed a bit lengthy and not specifically relevant at some times but after a while it turned out quite useful for understanding music culture and developing the project.

Something else which I found a bit difficult at some times was the fact that at a certain point between P2 and P4, we only had tutoring once every two weeks. This meant that there was a lot to talk about during one tutoring session. It also meant that after a tutoring session, it felt that there was no urge to immediately continue as the next tutoring was still two weeks away. Because of this, I would prefer to have shorter tutoring sessions every week instead of longer ones every two weeks.

CONCLUSION & WHAT'S NEXT

When looking back at the products made and going through the whole process again, it made me realise that a lot has happened in one year. Of course this project taught me specific aspects of the architecture of public buildings and music venues and it broadened my view on music and architectural theory in general. But next to that, I believe this studio has really amplified my design skills. I discovered the importance of doing broader research on the topics relevant to the design assignment and more important, during the year I have become more proficient in communicating my ideas and making design choices. With this, I am less stressed compared to before and I am more convinced of my capabilities, in other words: I know what I can achieve in a certain amount of time.

As mentioned before, a lot of emphasis was put on experimenting and exploring different ideas during the design development. This was done on purpose as I enjoy coming up with creative and unusual solutions a lot. Next to that, I think that this creative process and the ability of adding "something extra" to a design is what characterizes the work of an architect. It means that as an architect, you are able to spend time on experimental and daring design choices which will be justified because you are capable of translating concepts into a convincing and realistic design. And ultimately therewith, as an architect, you can contribute to a better living environment. Because of this I experimented, to become more proficient in the things that

are of great importance of the profession of an architect.

In a broader, academic context, this project relates to the studio and the master programme in the way that the project explores the possibilities and contexts of creating a public space and that it integrates the idea of multiplicity. Put in a larger framework (of the architectural profession), this project can be an example of what happens when with the design of a public building topics like "form" and "festival" are elaborated in quite an extreme way.

At last, for the period after P4, I want to add the final touches to the design and I want to focus on creating convincing images. This means making drawings more presentable and producing several renders of a detailed digital model. Next to that, a physical model will be constructed to be able to truely see the spatial qualities of the music venue.

Addition: a month later, 1 week before the public presentation.

The last weeks were great as with the passing of the P4 presentation, it was certain I was going to graduate. Next to that, everything that still had to be done mainly was with the purpose of making the design prettier and more convincing. This was great fun as with every render or scheme you could see it all coming together more and more. At the moment of writing, everything is pretty much ready except for the physical model. The last week is completely reserved for making this model as well as preparing the talk for the public presentation on the 17th of June, 2022.

Finally, it might be interesting to briefly describe my ambition for the near future. After graduating (and of course after going on holidays), I am looking at two options to start my carreer in the architectural field. The first idea is that I have the ambition to join a medium to large sized, international oriented, architectural firm in The Netherlands to be able to rapidly gain experience and increase my knowledge. Another option is that am starting for myself, finding some projects to work on and perhaps join forces with some others. What it is going to be and how exactly it is going to look like is still unclear but I am very much looking forward to it.

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IMAGES

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2.07. Made by group 3 (Zsa-Zsa, Phat, Chris, Edgars).
2.08. Made by group 3 (Zsa-Zsa, Phat, Chris, Edgars).
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